THUMBAY

# Annual Conference of International Medical Sciences Academy

# IMSACON 2012

HOSTED BY

جامعة الخليج الطبية

GULF MEDICAL UNIVERSITY

Learn from the world

## ON 6th & 7th OCTOBER 2012

# ABOUT GMU

The Gulf Medical University came into existence with the Decree issued by the Minister of Higher Education & Scientific Research, His Excellency Sheikh Nahyan bin Mubarak Al Nahyan on the 10th of July 2008 when the Gulf Medical College Ajman was officially approved as the Gulf Medical University. The University had its humble beginnings as the Gulf Medical College Ajman established with the Decree No. 1, dated 28 January, issued by His Highness Sheikh Humaid Bin Rashid Al-Nuaimi, the Ruler of Ajman and Member of the Supreme Council, U.A.E in the year 1998 as there was a felt need for a medical college in the United Arab Emirates.

The Gulf Medical College Ajman began with the M.B.B.S program and later the Bachelor of Physiotherapy program was added in October 2000. Today the Ministry of Higher Education & Scientific Research has recognized the Gulf Medical University as a center of excellence and has permitted the University to foray into newer programs in Pharm D, DMD, Masters Programs in Clinical Pathology, Toxicology and Public Health.

The focus of the Gulf Medical University is in the three core areas of Medical Education, Healthcare and Research. The university will strive to develop these three core areas as spotlights of medical excellence in the coming years.
This was the first medical institution in the region, which offers admissions to both boys and girls of all nationalities. The university has infrastructure and facilities, which is on par with some of the established medical institutions in the world. Apart from the academic programs, Gulf Medical University is in the forefront of Continuing Medical Education and Continuing Professional Development Programs. The university has been organizing well acclaimed International and Regional conferences and Symposia. The university also publishes a quarterly Health magazine - GMC Health Journal, as part of its commitment to informative medical journalism.

## Our Promoters

Gulf Medical University Ajman is promoted by the Thumbay Group U.A.E. The group is professionally managed and has grown at a tremendous pace and is today a dynamic conglomerate with diverse interest , employing over 1000 people in its operations spreading across the globe. Apart from health care the group>s current focus area including education, real estate, turnkey projects, information technology, consultancy, timber , shipping and import & export.

# ABOUT IMSA

International Medical Sciences Academy was established as a global organization in 1981 registered as a body registered under Societies registration Act XXI of 1861 in India. IMSA is an Associate Member of Council for International Organizations of Medical Sciences - CIOMS, Geneva.

IMSA has 28 Chapters in India and abroad and a strong membership of over 2500 Senior Medical Professionals as Fellows & Members of International Medical Sciences Academy. JIMSA, the journal of International Medical Sciences Academy has come a long way. It is a quarterly publication which has uninterruptedly served the medical community since its beginning in 1987.

Dr K Jagadeesan Honorary. Overseas Adviser, visiting Registrar and International Co-coordinator, Royal College of Physicians and Surgeons, Glasgow, Emeritus Professor of Dr M G R University, Chennai and Director K J Hospital, Chennai is the present President of the Academy. The Academy is run by Trustees headed by its President.

Today it is one of the prestigious Societies in Medical and Biomedical Sciences sustaining both Academic and social relevance. The Chapters hold Workshops, seminars where senior most medical scientists from various specialties take part and share their knowledge and experiences with the junior medical professionals. The professionals hold rural CMEs and organize programmes to talk to patients and wherever necessary help in treating the rural people in urban hospitals.

IMSA has a tremendous responsibility of working for the welfare of humanity and organizing CME Programmes. This is however the beginning.

International Medical Sciences Academy has a clear vision to cooperate with approved institutions and interested bodies for the purposes of helping the cause, understanding amongst medical educationists, scientists, specialists and administrators of different countries.

IMSA aspires to develop, establish, and prescribe international standards with respect to medical education, medical and health care and medical research and establish an International Institute of Medical Education.

IMSA holds its Annual conferences every year in India and abroad every alternate year respectively. It is a congregation with highly specialized deliberations on the theme of the conference every year. The conferences are a special feature of the Academy where academicians, educationists, research scholars and medical Professionals present, speak and exhibit poster presentations. The event is a special exhibition and deliberation of the speakers, guest speakers, talks, lectures as part of the Scientific Programme and special IMSA Orations.

It is an excellent opportunity to express our emotions on the vibrancy of the IMSA Culture.

# Profiles of Founder Members – International Medical Sciences Academy

## Dr (Mrs.) Sushila and Dr K N Rao International Oration 2012

## Late Dr K N Rao

Dr. Kamarazu Narasimha Rao, was born on 31st January, 1907 at Gudivada in Andhra Pradesh. Dr. K.N. Rao took his M.B.B.S. in 1930. he had several distinctions in the Medical College, prizes in Physiology, Pathology, Medicine and Surgery, Medals for Clinical Surgery and Mid-wifery, Gynaecology and diseases of the new-borns, diseases of children, Johnstone Medal and the Blue Ribbon as the best outgoing student. He joined the Indian Medical Service in 1935 in the military wing. He was a Prisoner of War in Singapore from 1942 to 1945. In 1946 he was transferred to the Civil Branch of Indian Medical Service. In 1948-49 he was Professor of Medical Jurisprudence in the Christian Medical College, Vellore, and in 1951 Professor of Tuberculosis in Stanley Medical College, Madras and the Tuberculosis Adviser to the Government of Madras.

Dr. Rao has published several books on Public Health and Medicine. Special mention may be made of hisbooks on Medical Education, Nation's Health, Philosophy of Medicine, and India and World Health. Students of Public Health will recall his numerous lectures in various Universities. His papers on Surgical Treatment of Pulmonary Tuberculosis, Modified Thoracoplasty Operation and Tuberculosis Control and Role of General Practitioners are read with esteem and respect.

Dr. Rao was made Emeritus Professor of Tuberculosis in 1955. he was Director of Medical Services of Andhra from 1954 to 1963 and Director General of Health Services in the Government of India from 1964 to 1968. He was Chairman of the Expert Committee of the W.H.O. on Tuberculosis in 1964, Chairman of the Executive Board of W.H.O. 1967-68, First President of World Federation of Public Health Association, Consultant in Medical Education of the WHO/PAHO for Latin America in 1968 , W.H.O. Visiting Professor of International Health at the Toronto University and WHO Consultant in medical

Late Dr K.N.Rao, we owe everything to these visionaries. The most fashionable liquid asset a gentleman ever possessed - Liquid dreaming, the revolutionary vision of hope that gives a fluid like feel to each of the collection. The concept of free flow to the humanity.

The person does not have to be anyone extraordinary; he has just to be obsessed.. Today we say he did it and we are here to follow the footsteps of a visionary. Personal style is sometimes a matter of personal pride. But interestingly great men are harder to come by anywhere.

Dr Kamarazu Narasimha Rao was born January 31, 1907 at Gudivada, in Andhra Pradesh. He had several distinctions in the Medical College in various subjects, medals to his credit, and the blue ribbon as the best outgoing student. He joined the India Medical Services in 1935. He was a prisoner of war in Singapore in 1942 to 1945. In 1948-1949 he was a professor of Medical Jurisprudence at CME, Vellore, a professor in 1951 and Advisor to Government of Madras.

Dr Rao has written several books and papers worth mentioning like Medical Education, Nations Health, Philosophy of Medicine, India and World Health. His papers on Surgical Treatment of Pulmonary Tuberculosis, Modified Thoracoplasty Operation and Tuberculosis Control and Role of General Practicioners.

Dr Rao was the Emiritus Professor of Tuberculosis in 1955. He was Director of Medical services in Madras from 1954 to 1963 and Director General of Health Services in Government of India from 1964 to 1968. He was Chairman of the Expert Committee of the WHO on Tuberculosis in 1964, Chairman of the Executive Board of WHO 1967-68, first president of World Federation of Public Health Association, Consultant in Medical Education of the WHO/PAHO for Latin America in 1968, Visiting Professor of International health at the Toronto University and WHO consultant in Medical Education in Sierra Leone in 1970. he was a member of numerous Committees, Commissions and Councils in India and abroad, and is the recipient of coveted awards like Dr P N Raju's Oration Award of ICMR, Sarabhai Oration Award of the Association of physicians of India and B C Das Gupta Oration Award of the Indian Public Health Association. Honorary LLD was conferred on him by Shree Venkateshwara University, Tirupathy.

For nearly 40 years Dr Rao has served the cause of health, especially Tuberculosis with rare devotion, foresight and leadership. It is in the fitness of things that the Tuberculosis Association

of India honours this great son of India with its Gold Medal.

The International Medical Sciences Academy had the privilege and association of this great founder with a distinction par excellence. His pioneering approach and vision has led us to this level that we hail the IMSA fraternity today.

## Dr Pinnamaneni Narasimharao International Oration 2012

## Late Dr P Narasimha Rao,

Dr P Narasimha Rao had been an International figure both in academic and teaching was the honorable President of International Medical Sciences Academy for more than a decade since 1990 to 2002.

International Medical Sciences Academy today enshrines the vision and mission of this great revolutionary. It has to be for a good reason that we reckon our founder President to be very good. He had to his credit several outstanding contributions to the medical fraternity till his death.

Dr P Narasimha Rao was born on December 8, 1913.

Dr Rao was Vice Chancellor of Andhra University besides he headed the Andhra University Sports Council. He was the designate Vice Chancellor of Nagjuda University.

Dr Rao was conferred the Fellowship of Royal College of Physicians and Surgeons Glasgow in 1993. He was awarded Dr B C Roy National Award for his contributions in the medical field as "Eminent Medical Man" in 1993.

Dr Rao was elected the President of Medical Council of India in 1994. He had been a member of the Governing Body of All India Medical Sciences in New Delhi.

Appreciating his organizational capabilities, he was elected President of the Academy in 1990, reelected in 1995 and again in 2000. Because of health, he relinquished the post of Presidentship in April 2002.

Dr P Narasimha Rao had been associated with International Medical Sciences Academy since its inception in 1981. The Academy has flourished tremendously during his tenure as President.

Keeping in view his contribution, his services to the humankind and in his memory as a father figure to the Academy, IMSA has established an International Oration "Dr Pinnamaneni Narasimha Rao International Oration".

Late Dr. P Narasimha Rao will always be an inspiration and example for us to follow.

## Dr TMA Pai International Oration 2012

## Dr T M A Pai

Tonse Madhav Ananth Pai, T. M. A. Pai), (April 30, 1898 – May 29, 1978), a Goud Saraswat Brahmin was an Indian doctor, educationist, banker and

philanthropist, most well known for building the university town of Manipal, Karnataka, India.
He was first to a start private, self financing medical college offering MBBS in India. Pai established the Kasturba Medical College, Manipal in 1953 and Manipal Institute of Technology in 1957, which was followed by a string of other education institutions including Kasturba Medical College, Mangalore, Manipal College of Dental Sciences and Manipal College of Pharmaceutical Sciences. He, along with his brother Upendra Pai, also established Syndicate Bank originally in Udupi, Karnataka, which has its headquarters now in Manipal and Bangalore. He was responsible for its popular Pigmy Deposit Scheme.
Awards
T M A Pai was conferred the Padma Shri by the Government of India in 1972. He was awarded the degree of D.Litt. by the Karnataka University in 1973 and the Andhra University in 1975.
The Government of India brought out a stamp commemorating Pai on October 9, 1999. Pai has also been recognized by Ripley's Believe It or Not as the person who has established the most number of educational institutions in his lifetime.
Manipal is distinct from any other place of learning. The uniqueness of Manipal is its transformation from a barren hill top into an international university town. This metamorphosis was the culmination of years of love and labour put in by a country Doctor - Tonse Madhava Anantha Pai.

Dr. TMA Pai based his philosophy of growth and development on self help. The result is for all to see. And probably emulate. The Dr. TMA Pai Foundation and the Academy of General Education together administer over forty four educational institutions. While all the professional colleges are located in Manipal and Mangalore, many of the schools and colleges have a wide dispersal with its centre of activity being a rural area offering educational opportunities for the first time to rural population. At their door step a large number of these educational centers were made possible due to a perfect integration of the Academy's initiative and local help.

The Manipal experiment when echoed could perhaps solve many an ill facing the developing economies the world over.
Accolades from far and wide
December 1971 issue of SPAN carried a multipage article on Manipal. SPAN summed up the successful experiment of Dr. TMA Pai thus: "IT COULD ONLY HAPPEN IN MANIPAL. The sun never really sets in Manipal, for Manipal the exuberance of youth, the vitality of morning. Built on a rusty outpouring of latterite rock on the Mysore Coast, Manipal basks in the knowledge that all it stands for is the result of community spirit, of sacrifice of hard work. "Mrs. Indira Gandhi in 1959 described Manipal as "the work of men of imagination, enthusiasm and drive which is the greatest need of India today. President V.V. Giri in 1967 remarked: Dr TMA Pai is one of the best organizers for the prosperity of any movement in our country. Selden Menefee, International writer and author of "The Pais of Manipal" commented thus: "No plan quite like this been conceived any where else in India. It could only happen in Manipal". THE UNESCO COURIER describes: "Transformation of Manipal has come about through the vision and determination of a country doctor named Dr. TMA Pai, who sparked off a remarkable community enterprise in education planning and educational financing from co-operative sources. The famous "Ripley's Believe it or not" has immortalized Dr. TMA Pai as "A banker and physician who founded 15 high schools and public schools and public schools and 15 colleges. " Limca Book of Records describes Dr. TMA Pai as having established 32 educational institutions between 1942 and 1978.

# Profiles of members of Board of Trustees of International Medical Sciences Academy

## Dr K Jagadeesan, President, Member, Board of Trustees, IMSA

Dr K Jagadeesan FRCS., FIMSA, Chief Surgeon General, Transplant and Cancer Surgeon and Emeritus Professor of Dr M G R University, Chennai and Director K J Hospitals, Chennai is the present President of the International Medical Sciences Academy. Honors and Awards:
2010: Ethics Board Committee member "Needy Little Hearts"
1994: Organizing Committee Royal College of Surgeons Glasgow, England.
1993: Observer at Thomas E. Starzl Liver Transplant Unit, Pittsburgh Pennsylvania.
Talented and accomplished Doctor with fellowship in Hematology and extensive background in hospital consulting, management and business operations. Proven ability to establish and grow highly successful medical practice. Background in researching Coagulation diseases. Special Interest in Clinical Research. Exceptional presentation, reporting, and communication skills.

Dr K Jagadeesan, his ability to understand the need of the fraternity in India, has been instrumental in popularizing the Royal College in India. His stature and credibility stood as a bridge between medical fraternity in India and UK. His foresight encouraged him to publicize the Royal College in India. He had been an examiner for FRCPG and an overseas advisor to the College since 1990. He organized one of the best International Conference of the College in India. He is very well remembered today for bringing new practices in the field of Medicine in India.
He had been instrumental in encouraging student exchange programme among medical fraternity in India and UK. A professional par excellence he believes in the continuing medical education programmes and has the foresight to bring the two organizations together. His dedicated effort has today K J Hospital recognized in India for FRCS examination in India.

## Dr H S Luthra, Vice President, Member, Board of Trustees, IMSA

Dr H S Luthra possesses Fellowship: Mayo Graduate School of Medicine, Mayo Clinic, Rochester, MN in the department of Rheumatology, He is from Medical School: Christian Medical College, Ludhiana, Punjab, India with Residency in Internal Medicine, Mount Sinai Hospital, Chicago, IL
Certifications: American Board of Internal Medicine, American Board of Internal Medicine – Rheumatology.
Academic Rank: He is presently Professor of Medicine
He has been interested in clinical and therapeutic studies in Rheumatoid Arthritis, Relapsing Polychondritis and Retroperitoneal Fibrosis.
He has been involved in studies in collaboration with Dr. Chella David and in developing and studying animal models of rheumatic diseases focusing upon various aspects of the role of MHC genes, using inbred, congenic, transgenic and knock-out mice.

Dr Sandip Mukerjee, Member, Board of Trustees, IMSA

## Dr Sandip Mukerjee, F.R.C.S. (Eng.), F.R.C.S. (Edin.), F.A.C.S., F.I.M.S.A.Consultant Surgeon

M.B., B.S. (Cal.) 1953, F.R.C.S. (Edin.) 1957. F.R.C.S, (Eng.) 1957.
F.A.C.S. (Fellow of the American College of Surgeons) 1964, F.C.C.P.( Fellow of the American College of Chest Physicians), F.I.M.S.A (FOUNDER Fellow of the International Medical Sciences Academy), F.I.A.C.S. ( Fellow of the Association of Thoracic & Cardiovascular Surgeons of India ) 1992. F.A.I.S. ( Fellow of the Association of Surgeons of India ) 1993.
Honors:

Honorary Surgeon to the President of India since 1973 to 2002 from H.E. Shri Fakruddin Ali Ahmed to H.E. Shri K.R. Narayan.
Dr. B.C. Roy National Award of Medical Council of India in Surgery, 1973 as 'Eminent Teacher' in Surgery.
Honorary Professor Indian Medical Associations College of General Practitioners in Surgery and Allied Sciences at the New Delhi Headquarters, Oct. 1986.
Fellowship of the Socie'te International de Chirugie, 1987.
Fellow of the Royal Society of Medicine, London. 1962.
Commonwealth Fellowship ( 1966 to 1967 ) : Awarded by the Association of Commonwealth Universities for training in Thoracic and Cardiovascular Surgery at the Westminster Medical School of London under Mr. Charles Drew (inventor of profound Hypothermia) and Mr. Peter Jones.
Founder Secretary, India Chapter of the American College of Surgeons.
Governor -at -Large from India to the Board of Governors of the American College of Surgeons for 3 years (1995-97)
Re-elected Governor from India to the Board of Governors of the American College of Surgeons for the IInd Term of 3 years (1997 - 2000 ).
President, Indian Medical Association (New Delhi Branch) 1996-97.
Awarded "Teachers Day Award" by the IMA Lady Hardinge Branch on 4th Sept.1996.
Received the " Best President " Award by the Delhi Medical Association (1996- 97 ).
Outstanding Rotarian Award by RI District 309 in 1980, for the first time ever eradication of Poliomyelitis from Nabikarim area, Pahargunj, New Delhi in 1979 – 80, much before Rotary International conceived the idea of Polio Plus programmes.
Appointed Honorary Adviser to the Ministry of Health and Family Welfare in Polio Eradication Programme (1979 – 80).
President India Chapter of the American College of Surgeons (2000 to 2005.).
Elected Member, Board of Trustees, International Medical Sciences Academy.
Member , Editorial Board of the Journal of the International Medical Sciences Academy
District Project Director, Rotary District 3010. (1998 - 99).
Twice Elected President Of the Ex-Students Association of the RG Kar Medical College Calcutta at Delhi. (2000 – 2001 and 2001 – 2002).
Invited as the Chief Guest to the First Surgery Update held at The Government Hospital, Srinagar, and Kashmir in March 2002.
Outstanding Alumni Awarded at the Centenary Year of R.G.Kar Medical College, Calcutta '02.
Distinguished Service Award on World Elders Day– IMA in 2007.
Lifetime Achievement Award - Delhi State Chapter of ASI- in 2004.
Lifetime Achievement Award- ASICON Foundation of ASI- in 2005.
Dean, Delhi Institute for Higher Medical Studies. (DIHMS)
Member, Editorial Board Journal of the Association of Surgeons of India, Delhi Chapter.
President – Association of Surgeons of India

(Delhi State Chapter) 2004.
Re-elected President – Association of Surgeons of India (Delhi State Chapter) 2005 to 2008.
Elected Chairman- ASICON Foundation in 2009.
Eminent Medical Persons Award- Delhi Medical Association on Doctors Day (1st July) 2008.
Dr. JJ Sood Memorial Award for Excellence- IMA New Delhi Branch and IMA Academy of Medical Sciences- 2010.
Invited to deliver Guest Lecture at the 69th Annual Conference of the Association of Surgeons of India at Coimbatore.
Elected Organising Chairman of the 70th Annual Conference of the Association of Surgeons of India held at Delhi in December, 2010.

## Dr Ramdas M Pai, Member, Board of Trustees, IMSA

Ramdas Madhav Pai, MB BS, MD, MHA, FGDP is the current Chancellor of Manipal University. He also serves as chairman of the Manipal Education and Medical Group.

He is also the Pro-Chancellor of Sikkim Manipal University and president of T. A. Pai Management Institute and Registrar of the Academy of General Education, Manipal.
His efforts led to Manipal University getting the status of a deemed university granted by the University Grants Commission in 1993. Manipal Education and Medical Group under his watch has led to exponential growth.
He has previously served as a member of the Executive Council of Assam University, the academic senate of Mangalore University, and the National Assessment and Accreditation Council.
In 2000, he was nominated by the Union Minister of Human Resource Development to a special six-member advisory committee to the Department of Higher Education.

In 2001, Pai set up the Manipal Foundation to run the universities philanthropic efforts.

In 2011, he received the Padma Bhushan from the President of India Pratibha Patil for his outstanding contribution in the field of education and healthcare. He received the "Udupi Rathna in 2005 from the Udupi Utsav Committee and honored by the Government of Karnataka in 2006 in celebration of the Suvarna Karnataka Year. 'Kanara Ratna Award' by Kanara College Society, Kumta in Feb 2008. He received an Honorary Doctorate by the Milwaukee School of Engineering in 1996 and Andrews University in 1998 and serves as honorary Professor of International Health at the University of Minnesota Medical School since 1999. The Faculty of General Dental Practitioners of the Royal College of Surgeons of England bestowed him with fellowship in 2004. In 1993, he accepted the Dr. B. C. Roy Award for his community health efforts from the President of India Shankar Dayal Sharma in 1993 and received the Phillips Medal of Ohio University in recognition of public service.
He presented the Key to the City of Loma Linda, California in 1982 and 1991
Intellectuals Honor – The Great Son of the Soil award by All India Conference of Intellectuals in 1997.

## Dr (Ms) S Padmavati, Member, Board of Trustees, IMSA

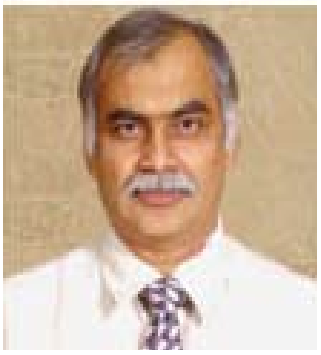
## Dr (Ms) S Padmavati, F.R.C.P. (London), F.R.C.P.E., F.A.C.C., F.A.M.S., D.Sc. (Hon.)

Dr. S. Padmavati was born in Burma and received her early education there. She had a brilliant undergraduate career. Specialized in Cardiology in the U.K., U.S.A. (Harvard University and Johns Hopkins Hospital) and in Sweden after

postgraduate education in the U.K.
Present Position
President – All India Heart Foundation
Chief Consultant in Cardiology, National Heart Institute
President, Asian Pacific Heart Network
Corresponding Member – Cardiac Society of Australia and New Zealand.
Member, Expert Committee on Cardiovascular Diseases, World Health Organization.
Director, Rotary Pacemaker Bank of New Delhi, affiliated to Heartbeat International, U.S.A.
Council Member – World Hypertension League.

Past Affiliations: National: President, National Academy of Medical Sciences, President, Cardiological Society of India, Member – Governing Body, All India Institute of Medical Sciences, Member – Governing Body, Indian Council of Medical Research, Dean – Faculty of Medical Sciences and Chairman Board of Research Studies, University of Delhi, Member – Governing Body, Jayadeva Institute of Cardiology, Bangalore.
International: ISFC (Now WHF): Council Member.
Member Council on Epidemiology & Prevention.
Member Adhoc Committee on RF/RHD.
Secretary General Vth World Congress of Cardiology (1966)
Asian Pacific Society of Cardiology (APSC)
1st Secretary General, Later Vice President.
Member, Research Committee.

Dr Bhaskar Rao, Member, Board of Trustees, IMSA



## Dr. B. Bhaskar Rao MD, MS, DNB (CT Surgery)
## Chief Cardio Thoracic Surgeon

Presently he is Chief Cardio Thoracic Surgeon Krishna Institute of Medical Sciences, Secunderabad.

During his Higher Specialist training both in India and Australia, he has performed some of 8,000 Cardio Thoracic Surgeries both under direct and indirect supervision. Over the past 12 years, he has been working as a Consultant Cardio Thoracic Surgeon in India. During this period, he has performed 10,000 complex and complex major Cardio Thoracic procedures without supervision.

He conceived, designed and established Krishna Institute of Medical Sciences (KIMS), a 300 bedded upscale multispecialty Hospital, located on a sprawling campus at Minister Road a between the twin cities of Secunderabad and Hyderabad.

This is the latest addition to the Bollineni group of Hospitals in Andhra Pradesh & I am currently the Managing Director & Chief Executive Officer of this Institute. Established at a cost of 1 Million Sterling pounds, this is one of the largest Multispecialty Hospitals in the Private Sector in the State in Andhra Pradesh. The Hospital has been set up in keeping with international standards using cutting edge technology and is managed by a group of highly qualified Doctors and Health Care Professionals. The hospital has over 30 Specialist with an excellent professional record.

## Dr Shaheena Asif, Member, Board of Trustees, IMSA

Dr Shaheena Asif, BSc., M.B.B.S. (Punjab University) D.Obst, R.C.P.I., M.R.C.O.G, F.R.C.O.G. (RCOG London), D. Obst Royal College of Physicians, Ireland

She is Obstetrics/ Gynaecology, Director Surgimed Hospital, Lahore, Pakistan, Co-Chairperson Lahore Medical and Dental College, Lahore, Pakistan, Professor of Obstetrics and Gynaecology, Lahore Medical and Dental College, Professor PGMI, Lahore, Professor Fatima Jinnah Medical College, Lahore, Assistant Professor Allama Iqbal Medical College, Lahore, Visiting Gynaecologist Ghurki Trust Teaching Hospital.

## Dr Nadey Hakim, Member, Board of Trustees, IMSA

Prof. Nadey Hakim GCSJ, MD, PhD, FRCS, FRCSI, FACS, FICS (Hon), FASMBS, FINS (Hon), FIMSA (Hon), born April 9, 1958. General, transplant and bariatric surgeon.

Nadey Hakim is a doctor, surgeon and prolific author. He is Surgical Director West London Transplant Unit at Imperial College Healthcare NHS Trust. MD from Paris Descartes University. Laureate Faculty of Medicine Cochin Port Royal. Surgical training Guy's Hospital, PhD fromUniversity College London. Gastrointestinal Fellowship Mayo Clinic and Transplant Fellowship University of Minnesota. Has published over 150 peer-reviewed papers and has written/edited 21 textbooks in the field of General, Transplant and Bariatric surgery. Has successfully started the first Pancreas Transplant Program in the SE of England. Editor in Chief of International Surgery (2000–2011), Emeritus Editor International Surgery (2011 to date), on Editorial Board of Transplantation Proceedings, Graft, Experimental and Clinical Transplantation. Past President of the Transplantation Section of the RSM. Represented Britain in the International team which has performed the world first arm transplant. He is the First Max Thorek Professor of Surgery. He is a Reader in Transplantation Surgery at Imperial College London. He was awarded Honorary Professorships from Lyon University, Ricardo Palma Lima Peru University, Bashkent Ankara University, University of São Paulo and was visiting professor at several institutions worldwide including Harvard and the Cleveland Clinic. He was the 35th President of the International College of Surgeons. Was awarded the 2007 J. Wesley Alexander Prize for outstanding research in the field of Transplantation. London School of Surgery Transplant Tutor 2008 to date. Member of Council Royal Society of Medicine 2009-2012. Honorary Secretary Royal Society of Medicine (2011 to date). Bailiff Grand Cross Order of St John of Jerusalem 2010. Specialist advisor to NICE on new transplant interventions 2010 to date. Member of The International Bariatric Surgery Review Committee (IBSRC) 2010. Honorary Fellow of the Association of Surgeons of India (ASI) 2010.

Profiles of Office Bearers International Medical Sciences Academy

## Dr P K Dave, Chairman, India Region, IMSA

## Padma Shri Dr. (Prof.) P. K. Dave, M.B.B.S., MS, F.N.A.M.S., F.I.M.S., F.I.C.S.

Dr P K Dave is one of the finest and most experiences orthopedic surgeons in the country. He is the former Director of All India Institute of Medical Sciences in New Delhi. Dr Dave is

engaged in major spinal corrections and disc surgery in Rockland Hospitals in Delhi.

He has been Editor of Indian Journal of Orthopedics, Vice President of Delhi Medical Council, and President of Spine Surgeons of India, Vice President of Delhi Orthopedics Association. He has been a member of the Medical Institute of National Importance (PGI, AIIMS, NII, IGIMS, NIHFW, Neilgrihims, and SGPGI).

Presently, he is Emeritus Professor & Ex President of National Academy of Medical Sciences (NAMS). He is President of Indian Society of Biomechanics, IIT, Delhi. He is the Chairman of National Accreditation Board for Healthcare and the Committee on Disaster Management of the Human Rights Commission to review the grants of the deemed university Status. He is the member of the Governing Body of National Board of Examinations (NBE) and the Disaster Mitigation Committee of the Indian Red Cross Society.

He has been bestowed with many honors:

J P Jhunjhunwala Chaitable Trust, Award for outstanding contribution in the field of Medicine.

Shreshtra Shee, Award for Delhi Citizens Forum for Civil Right.

Chief Guest, Award AIIMSONIANS of America for 1995 & 1997.

## Dr R K Thukral, Secretary General, IMSA

Dr R K Thukral, MBBS (MAMC, Delhi), MS Delhi University. With advance training in Cochlear Implant Surgery from UK, Stapes Surgery (Stapedectomy) From France, Middle Ear Implants Surgery from France, Endoscopic Sinus Surgery from Austria.

Dr R K Thukral is a member of Association of Otolaryngology of Delhi, Association of Otolaryngology of India and Delhi Medical Council. He is presently an ENT Consultant and head & Neck Surgeon. He heads the Thukral Hospital in India.

Profile of Editor, Journal of International Medical Sciences Academy

Dr P D Gulati, Editor, JIMSA

Dr P D Gulati is MD – Int Medicine with Advanced Training in Nephrology at Royal Victoria Infirmary (New Castle Upon Tyne, UK) ; Guy's Hospital, London; Royal Post Graduate School, Hammersmith,- London(1971-72) under the Commonwealth Fellowship Scheme, Govt of India.

He has been conferred the Fellowship of MAMS-Member, National Academy of Medical Sciences, FAMS- Fellow, National Academy Medical Sciences, FIAMS- Fellow, IMA Academy of Medical Specialists, FIMSA-Fellow, International Medical Sciences Academy, FICAI-Fellow, Indian College of Allergy and Applied Immunology, FAIID- Fellow, All India Institute of Diabetes, FISN- Fellow, Indian Society of Nephrology, FICP- Fellow, India College of Physicians, FRCP-Fellow, Royal College of Physicians, Glasgow.

Total Number of Years- Teaching / Clinical Experience - 50 years as Lecturer, Assistant, Professor, Associate Professor, Head of Division of Nephrology at MAMC, New Delhi, India;
Sr. Consultant Nephrology since 1982.

Profiles of Central Executive Committee Members, IMSA

## Dr Chalapathi Rao, Member, Central Executive Committee, IMSA

## Dr P V Chalapathi Rao, MS FRCS(Ed) FACS FICS FAIS FIMSA

Prof.P.V.Chalapathi Rao is an exemplary clinical surgeon, distinguished educator and academician, a major contributor to the development of Art and Science of surgery. He joined Andhra Pradesh Medical Service in 1958 and later on occupied the position of Professor & Head of Department of Surgery, Osmania Medical College, Hyderabad .He was the Chairman of Durgagabai Deshmukh Hospital & Research Centre for 8 Years. He is acclaimed by his students as an outstanding teacher and superior surgeon to his patients. His recognition as renowned teacher and his love for academic pursuits resulted in numerous invitations to deliver Guest lectures and orations in India and abroad.

He is an Emeritus Professor of Surgery of N.T.R University of Andhra Pradesh
He has been awarded the prestigious Dr.B.C.Roy National Award under the category of Eminent Medical Teacher for the year 1994. .
He has been awarded the Fellowship ad hominem of the Royal College of Surgeons of Edinburgh. In the past only 5 surgeons from India have received this unique award in the 500 years history of the college-the oldest surgical corporation in the world.

He is the Patron and Overseas Coordinator for the Postgraduate course for FRCS,MRCS, MS & DNB in General Surgery conducted by the Royal College of Surgeons of Edinburgh in Hyderabad every year since the year 2000..
He is the Founding Member of Global Academy of Tropical Surgery, Cairo (EGYPT), which is a Multidisciplinary Organization of the world for Education and Research.
He has been presented with "LIFE TIME ACHIEVEMENT AWARD" from Swami Vivekananda Institute of Hyderabad in 2001

He has been bestowed with an "AWARD FOR DEVOTION & DEDICATION TO SERVE THE MANKIND " from Yuva Kalavahini in 2002.

He has had deep involvement with the working of various professional organizations, for professional excellence and continuing education.
He is Fellow of American College of Surgeons, Fellow of International College of Surgeons, Fellow of Collegium International Chirugiae Digestivae, Fellow of International Medical Sciences Academy, Fellow of the Association of Surgeons of India and Member of more than 10 scientific and surgical societies.
In recognition of his services and his professional excellence, he was elected with overwhelming majority as :
President of The Association of Surgeons of India
President of The Indian Association of Surgical Gastroenterology
Vice President, International College of Surgeons
.
Prof. Rao has taken deep interest in Continuing Medical Education (CME) Prorgrames for surgeons in the delivery of surgical care. He has been elected as Convener of CME Programmes of the Association of Surgeons of India. His distinctive services to the surgeons of India in organizing about 50 highly attended CME Programmes have helped surgeons to familiarize themselves with the current advances of Medical knowledge and acknowledged on all hands.
Prof.Rao has excellent organizing ability as typified by his organization of Ten National and

International conferences in Hyderabad.

In the past he held several prestigious positions as Member of the Governing Council of Nizam's Institute of Medical Sciences, Member of Speciality Board in General Surgery, National Board of Examinations, Inspector for National Board of Examinations and Indian Medical Council, Member of Board of Studies, Osmania Unversity and Academic Coordinator, N.T.R. University of Health Sciences, Andhra Pradesh.

He was an Examiner of Osmania,Andhra ,Nagarjuna, Madras,Bombay and Calcutta Universities and National Board of Examinations for Post-Graduate
Examinations (MS / DNB)

Prof.Rao has great sympathy and love for ostomates. He is the President of Ostomates (A.P.) Under his able guidance the Association of ostomates imparts counseling of ostomates, providing them with the much needed psychological rehabilitation during preoperative and postoperative period, dissemination of information by way of lectures and seminars on topics of latest stoma management techniques.
Trauma is yet another area of interest of Prof.Rao. He has organized several conferences on trauma and symposium on 'Disaster Management', which was highly appreciated. He has been elected as President of Association of Trauma Care of India (AP)
He has delivered coveted Radha Devi Memorial Oration, Dr.Agarwal Trust Oration, Dr.B.V.Patel endowment Oration, Dr.Subodh Datta Memorial Oration and Dr. B.N. Rao Memorial Oration. He has presented several Scientific Papers and delivered Orations and Guest Lectures in the National and International Conferences. He has contributed chapters in four Text Books of Surgery and authored several publications in National & International Journals.

He is a tireless worker and inspite of his busy professional life; he regularly devotes his time in social work by conducting Free Surgical outpatient clinics for poor patients on alternate days and organizing Vasectomy camps & Rural Medical Check-up.

His life has been enriched by his splendidly supportive wife, Dr.Usha Lakshmi Kumari, an eminent Gynaecologist and son, Dr. Raghu Ram, an Up-coming Breast Surgeon and daughter-in-law, Dr.Vyjayanthi, a Specialist in Infertility and grand- sons Master Sairam & Master Krishna sai.

## Dr K K Aggarwal, Member, Central Executive Committee, IMSA

## Dr K K Aggarwal is the leading Sr. Physician, Cardiologist and Mind Body Consultant.

World-class Clinical Echocardiographer. – Health Communicator, Trainer, Preacher and Meditation Teacher. Writer, Author, Columnist, Orator and Anchor. Social activist & worker, Researcher, Conceptualizer, Visualizer and Advisor.

Dr K K Aggarwal is the Padma Shree Awardee by the President of India, He was conferred Dr B C Roy National Award by Govt. Of India (2005-06). Dr. D S Mungekar National IMA Award – Delhi Medical Association Swasthya Health Ratna 2005-06 Award DMA Nursing Home Forum Medical Statesman and Communicator of the Last Decade 2005-06 Award.
DMA Dr. B N Behl Foundation Award. – Rajiv Gandhi Excellence Award. – Indira Gandhi Priyadarshini Award. Delhi Hindi Sahitya Samellan – Sahitya Shree award (Doctor and Philosopher of Indian Culture Award). Rashtriya Gaurav Samman. – Abhipra Samaj Seva Puraskar. – The Great Son of the Soil Award. IMA New Delhi Branch Swasthya Ratna Award.
IMA New Delhi Branch Life Style Interventional

Cardiologist of the Last Decade Award.
IMANDB Life Time Achievement Award and IMANDB Health Communicator of the Last Decade Award.

## Dr A Govindan, Member, Central Executive Committee, IMSA

### DR A GOVINDAN B SC., M D., D M R D., PhD, F I C R., F I M SA

Dr A Govindan Retd professor of Neuro-radiology had joined D M R D in 1972 after 8 years service in various districts of Tamil Nadu
He joined M D Radio diagnosis in 1st April 1974 on the very next day of completion of D M R D.
He obtained MD in the year 1976.
He served in Madras Medical College and Stanley Medical College in various teaching posts
He was promoted to Reader in Radiology in year 1985
He was the professor of Neuro Radiology from 1986 to 1993
He retrieved the various neuro Radiological procedures like Myelography and Cerebral angiography from the clutches of Neurologists by establishing cordial relationship with them, the testimonial of which they had opened his portrait in the Neuro auditorium in the Institute of Neurology at Govt General Hospital Chennai.
He established a record of doing 10 myelographic procedures in 2 hours.
And he did 4 cerebral angiographic procedures in half a day.
He trained many batches of students in neuroradiology and many of are in different parts of the world.
He was examiner for various Universities
He is a visiting teaching faculty in Annamalai University
He was inspector Medical Council of India (1995-1996)
He published many scientific papers in national Journals
He conducted clinical trail of water soluble contrast medium for lumbosacral radiclography in the year 1973 and published a scientific paper.
He conducted trail of water soluble contrast called IOHEXAL and iopamidol and issued certificate in 1988. He has given many invited lectures
He delivered Dr Aurther Danial Memorial oration. In year 1992
He also gave Dr MVK Shetty Oration at Jaipur in 2011
He served National Vice president of IRIA President of IRIA TN & P Chapter for two terms
At present he is the Vice president of INDIAN SOCIETY OF PEDIATRIC RADIOLOGY.
He is the Secretary of the INTERNATIONAL MEDICAL SCIENCES ACADEMY TN CHAPTER
He is the Director of imaging sciences and Medical director K J Hospital Chennai.
He travelled extensively east and west of the globe.
He always considers himself as a student of Radiology.
To prove that he has done his Ph D on "SPECTRUM OF CONGENITAL CARDIAC AND VASCULAR LESIONS IN PATIENTS WITH MAXILLOFACIAL ANOMALIES" and got the award of PhD in 2011

# Profiles Speakers International Oration

Dr Pinnamaneni Narasimharao International Oration 2012

Dr.V.Raveenthiran.

V. Raveenthiran, MS., MCh, FRCS, Professor of Pediatric Surgery, SRM University, Chennai Associate Editor, Indian Journal of Surgery, Associate Editor, Journal of Neonatal Surgery, Editorial Board member, Journal of Indian Association of Pediatric Surgeons

Awards and Honors
Name of the Award
Eswaran Sakunthala Gold Medal, Awarded in recognition of Proficiency in Pathology
Sankaran Memorial Prize, Awarded in recognition of Proficiency in Practical Surgery
Radhakrishna Iyer Prize Awarded in recognition of : Proficiency in diseases of women
Best Outgoing Student (Blue Ribbon), outstanding academic performance as a medical student
Honor Inclusion of biography in "Marquis Who's Who" in the World Awarded in recognition of : Outstanding achievement in the field of Medicine
Best Paper award (Urology Session), Awarded in recognition of Outstanding scientific contribution
Distinguished Member, International Net of Scientific Correspondent, Outstanding contribution to surgery
IAPS Shanti Talwar Travel Fellowship, Awarded in recognition of Outstanding contribution to pediatric surgery
Best published paper award: Awarded in recognition of Paper published in the Journal of Indian Association of Pediatric Surgeons
Apollo Award of Merit for Promising Young Doctor, in recognition of : Eminence in pediatric surgery
Dr. RM Kasliwal Award, Awarded in recognition of : Best research work in the field of colorectal diseases
Best Researcher Award, Awarded in recognition of : High quality research
Honorary Fellowship Awarded in recognition of : Eminence in pediatric surgery

Senior author of the paper entitled "Male gender assignment and neophalloplasty in penile agenesis - Preliminary results of RAM flap technique" that won best paper prize under Budding Pediatric Surgeons' session at 7th Annual conference of Indian Association of Pediatric Surgeons (Tamilnadu & Pondicherry chapter) on 11 July 2008 at Vellore

Presently working since February 2011
Designation: Professor of Pediatric Surgery
Department: Pediatric Surgery
Organization: Sri Ramasamy Memorial (SRM) Medical College & General Hospital, SRM University, Kattankulathur, Kancheepuram District, Tamilnadu
Role: Same as Professor of Pediatric surgery (vide supra)

Membership / Fellowship in Professional Bodies

Indian Medical Association
Life member since 2000 (Membership number TN/6696/7/79/75267/2000-01/L)

Association of Tamilnadu and Pondicherry Pediatric Surgeons (IAPS – TN Chapter)
Life member since 2002 (Membership

Number LM 32 /2002)

Honorary Secretary cum Treasurer 2005 - 2009

Indian Association of Pediatric Surgeons

Life member since 2002 (Membership number 786)

Executive Board Member 2005 - 2007

Indian Society of Pediatric Urology

Life member since 2004 (Membership number 05/04)

Association of Pediatric Surgeons of SARC Countries

Life member since 2004

International Medical Sciences Academy

Fellow since 2004

Pediatric Urology Chapter of IAPS

Founder member since 2006 (Membership number 20)

Research chapter of IAPS

Founder member since 2006

Pediatric Endoscopic Surgeons of India (PESI)

Life Member since 2006 (Membership number 29)

Community Oriented Pediatric Surgeons (COPS) Section of IAPS

Principal Founder, Convener 2006 – 2009; Member since 2010

World Association of Medical Editors (WAME)

Member since April 2007

Alumni Association of National Teachers Training Center (NTTC), JIPMER

Member since September 2007

East Coast Club of Pediatric Surgeons

Principal Founder, Member since December 2007

Asian Association of Pediatric Surgeons

Life Member since 2010 (Membership number: 1/2010)

Royal College of Physicians and Surgeons of Glasgow

Fellow since 20 June 2011 (Membership PID No: 68636 / 2011)

Dr TMA Pai International Oration 2012

Prof. S M Rajendran

PROF. S.M.RAJENDRAN

M.D., F.R.C.P (Glasgow)., FIMSA,

**PROF. OF MEDICINE & DIABETOLOGY**
**SREE BALAJI MEDICAL COLLEGE & HOSPITAL**
**DIRECTOR**
**SREE BALAJI DIABETIC AND OBESITY RESEARCH CENTRE (BALDORC)**
**AND**
**REGISTRAR**
**BHARATH UNIVERSITY, CHENNAI.**

Prof. S M Rajendran is M.D., F.R.C.P (Glasgow), FIMSA, Presently PROF. OF MEDICINE & DIABETOLOGY, SREE BALAJI MEDICAL COLLEGE & HOSPITAL & DIRECTOR SREE BALAJI DIABETIC AND OBESITY RESEARCH CENTRE, (BALDORC)AND REGISTRAR, BHARATH UNIVERSITY, CHENNAI with TOTAL TEACHING EXPERIENCE: 34 YEARS FOR PG 42 YEARS FOR U.G

ON GOING RESEARCH PROJECTS ON 2012

SERUMMELATONIN.CPEPTIDESANDINSULIN

LEVEL IN PCOD TO DETEST THE PREVALENCE OF PRE DIABETES. STUDY OF VITAMIN D3 SERUM CALCIUM IN UNCONTROLLED TYPE 2 DIABETES MELLITUS.
SALIVARY MELATONIN LEVEL IN PRE CANCEROUS ORAL DISEASE.
NEW TYPE OF VIBRATORY SHOES FOR TYPE 2 DIABETES MELLITUS WITH PERIPHERAL NEURITIS.
COMPARATIVE STUDY OF PINEAL GLAND (THIRD EYE) IN VISUALLY HANDICAPPED POPULATION, TYPE 2 DIABETES MELLITUS POPULATION AND NORMAL POPULATION IS RELATION TO SERUM MELATONIN LEVEL.
PREVALENCE OF SENSORY NEUROPATHY AND MANAGEMENT.
EVALUATION OF FOOT COMPLICATION IN RURAL DIABETES POPULATION.
PREVALENCE OF TYPE OF VIRGINITIES RURAL DIABETIC POPULATION.
EFFECT OF YOGA IN DIABETES MELLITUS.
ALTERNATIVE MEDICINE DRUG TRAIL IN TYPE 2 DIABETES MELLITUS.
PREVALENCE OF TYPE 2 DIABETES MELLITUS IN VISUALLY HANDICAPPED POPULATION.

PAPER PRESENTATION IN NATIONAL LEVEL (2008 TO 2010)

PAPER PRESENTED IN THE 21ST ANNUAL CONFERENCE, THE INDIAN SOCIETY OF ATHEROSCLEROSIS RESEARCH: STUDY OF PERIPHERAL VASCULAR DISEASE IN TYPE 2 DIABETIC PATIENTS, CORRELETATION OF INFLAMMATORY MARKERS, SIALIC ACID AND CARDIOVASCULAR RISK FACTORS IN TYPE 2 DIABETES.

SPECTRUM OF INFLAMMATORY MARKERS AMONG TYPE 2 DIABETIC PATIENTS IN RURAL LOW SOCIO ECONOMIC GROUP LEADING TO AHTEROSCLEROTIC CHANGES.
PRESENTED AT INCOM 2010 AT CHENNAI: PREVALENCE OF HEPATITIS 'C' IN DIABETES MELLITUS. PATTERN OF DYSLIPIDEMIA IN STROKE
PAPER PRESENTATION IN INTERNATIONAL LEVEL 2010 TO 2011)

PRESENTED AT IMSA CONFERENCE 2010 AT LONDON: INVITED FOR ORATION LECTURE AND TO BE GIVEN AT IMSACON 2010 LONDON ON 10TH SEPTEMBER 2010 (TOPIC MYTHS & FACTS OF THIRD EYE).

STUDY OF ENDOCRINOLOGICAL MARKERS IN CRITICALLY ILL PATIENTS"

THE PREVALENCE OF CORONARY ARTERY DISEASE IN NEWLY DIAGNOSED TYPE 2 DM"

PREVELANCE OF LUNG DYSFUNCTION IN TYPE 2 DIABETES MELLITUS

PREVALANCE OF FACIAL NERVE NEUROPATHY AMONG CHRONIC TYPE 2 DM"

PAPER PRESENTED AT WORLD DIABETIC CONGRESS (IDF), DUBAI, DECEMBER 2011 : BNP AS A SENSITIVE TOOL IN DETECTING SUBCLINICAL DIASTOLIC DYSFUNCTION AMONG ASYMPTOMATIC CHRONIC TYPE 2 DIABETIC PATIENTS.

SCREENING TOOL TO IDENTIFY SILENT ISCHEMIA AMONG DIABETIC SUBJECTS

ROLE OF INFLAMMATORY MARKERS AS A PREDICTOR OF PERIPHERAL VASCULAR DISEASE AMONG CHRONIC ASYMPTOMATIC TYPE 2 DIABETES MELLITUS PATIENTS.

SIGNIFICANCE OF VITAMIN D3 IN CAUSING PERIODONTITIS AMONG CHRONIC ELDERLY TYPE 2 DIABETES MELLITUS PATIENTS.

PREVALENCE AND PATTERNS OF CHRONIC COMPLICATIONS IN RURAL DIABETIC POPULATION.

A STUDY OF ANDROGEN LEVELS IN TYPE 2 DIABETES MELLITUS : CORRELATION OF FREE TESTOSTERONE LEVELS WITH HBA1C, INSULIN, CRP, HAEMATOCRIT AND THE COMPLICATIONS OF DIABETES

STATUS OF INFLAMMATORY MARKERS,

SIALIC ACID AND CARDIOVASCULAR RISK FACTORS IN TYPE 2 DIABETICS MELLITUS.
Dr (Mrs.) Sushila and Dr K N Rao International Oration 2012

Prof. G. Ravindran

Dr. G. Ravindran, Ph.D (Biomedical engineering), PRESIDENT –Biomedical Engineering Society of India
. Former Director, Centre for Medical Electronics, Anna University, Chennai.

Awards and Honours
Awarded Dr. E. Balakrishnan Award for the contributions in the area of Ophthalmology. Dr. Brammiah Sastri Award for the contribution in the area of Bio Medical Engineering for the past 25 years, Received the Consolation award in National Level Competition organized by IEEE (Gujarat section) 2007 in "Future Technologies – Dream and Vision". Won Vincent Bendix Awards three times from IEEE (USA) for the projects guided by me. Won National Technology Awards three times from Govt. of India for the projects guided by me, The project Functional Electrical Stimulation for upper extremity won Best Project work award from Tamil Nadu Science and Technology.

Awarded Fellowship by Indian Association of Biomedical Scientists in recognition of the significant contribution to Bio-medical scientists, Awarded Fellowship in International Medical Association of Scientists, Awarded a Fellowship for National Association of Reproductive and Child Health.

Special Distinctions

Joint Supervisor for Doctoral Level Research along with former President of India Hon. Dr.APJ Abdul Kalam, Was Instrumental in starting a separate Master of Engineering Course in Medical Electronics and Master of Engineering Course in Bio Medical Engineering at Anna University, Was the project co-ordinator for Anna University – German Government Collaboration on Bio-medical Engineering, Was the project Co-co-ordinator for Anna University – Japanese Aid Programme for Bio-medical Engineering.
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No. of Publications – 190

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|---|---|---|
| International Conferences | - | 86 |
| National Conferences | - | 48 |
| International Journals | | - |
| 56 | | |

Membership in organization
Fellow in Indian Association of Bio-medical Scientists.
Fellow in Institution of Electronics and Telecommunication Engineering.
Fellow in National Association of Reproductive and Child care
Member in Institute of Electrical and Electronics Engineers (USA)
Member of Indian Society for Technical Education

# Honorary Fellowship Recommendations

His Highness Sheikh Humaid Bin Rashid Al Nuaimi
Member of the Supreme Council UAE and Ruler of Ajman

# Mr. Thumbay Moideen,
# Founder President, Board of Governors,
# Gulf Medical University, Ajman.

In 1998, Mr. Moideen established the THUMBAY Group U.A.E. Under his dynamic leadership it went on to achieve tremendous growth, and in the process, provided a means of livelihood to hundreds of families over the last decade. The Thumbay Group has since ventured into various fields like education, information technology, medical education and the latest - a chain of medical centers and pharmacies in and around U.A.E. With this venture, Mr. Moideen is well on his way to realizing his mission to be a leader in the field of healthcare.

The pioneering spirit of Mr. Moideen and his conviction, courage and confidence soon led to the setting up of UAE's first private medical college in U.A.E, Gulf Medical College, Ajman. This was followed by GMC Hospital & Research Centre, Gulf Medical Centre & GMC Pharmacy in Dubai. The Group has also established a hospital in Fujairah and a medical centre in Dubai and Sharjah. The Group will open new hospitals in Dubai and Ajman in 2012.

The roots lie in Mangalore, Karnataka from where Mr. Moideen hails. Born on 23rd March 1957 he is a third generation entrepreneur belonging to a well-known business family. Taking to business at the tender age of 21 years, he demonstrated his business acumen from the very start.

As a true leader Mr. Moideen has infused the values of dedication, discipline, dynamism and hard work at all levels of his organization. He enjoys tremendous respect from all sections of society, evident from the fact that he is invited

by various associations and organizations to be on their board as an active office bearer or in an advisory capacity. He is

Chief Patron of Ajman Indian Association & Indian Business Council, Ajman
Chief Patron of Beary's Association, Dubai
Recipient of Best Achievement in the field of Medical Education & Healthcare which was awarded by H.H Sheikh Humaid Bin Rashid Al Nuaimi
Recipient of "Mayura Award" for 'Achievements in the field of Medical Education & Healthcare' by Karnataka Sangha, Sharjah
Member of International Hospital Federation, Ferney Voltaire, France (Greater Geneva Area)
President of Asian Hospital Federation, UAE Region
Honored at the House of Lords, U.K. for invaluable contributions in the fields of Healthcare and Medical Education.

Mr. Moideen has also delivered talks at various conferences:

3rd National Conference on Healthcare Leadership 2009, conducted by Rajiv Gandhi University Bangalore, India and Padmashree Group, College of Hospital Administration, Bangalore, India. Title of Talk: Challenges of setting up a private medical university and teaching hospital in a foreign country.
Healthcare Expansion Congress Middle East conducted on 26th-27th May 2009 at Al Raha Beach Hotel, Abu Dhabi. Established more than 4 years ago, Healthcare Expansion Middle East is the region's definitive conference on healthcare business.

4th German-Arab Health Forum 2009, 21st - 22nd October 2009, Chamber of Commerce, Hamburg. Under the auspices of H.E. Ole von Beust, First Mayor of the Free and Hanseatic City of Hamburg.
Biohealth Mauritius 2009 Conference held on the 8th of December 2009.
IFC - World Bank Conference on The Investing in People: Scaling up the Education of Health Professionals in Africa held on 31st March 2010 in Washington DC, U.S.A.
Keynote Speaker at Middle East Healthcare Innovations Summit held between 25th - 26th April 2010 in Abu Dhabi, U.A.E.

Prime Speaker at the "MENA Healthcare Infrastructure Investment & Finance Summit 2010" held on the 27th and 28th October 2010 in Cairo, Egypt.
Speaker at the 2nd International Temos Conference on "Healthcare Abroad & Health Tourism" held between 14-16 November 2010 at Cologne, Germany.
Panelist/Speaker at the eHealth - Healthcare Leaders Forum held at Claridges Hotel, New Delhi on the 14th of March, 2011.

Invited speaker at the International Association of University Presidents (IAUP) XVI Triennial Conference, the world congress of University Presidents, Rectors and Vice-Chancellors held on June 17 - 20 at New York USA.

Invited Guest/Speaker on "Creating Trendsetting Brands" at the 02nd Franchise UAE, 2011, an International Franchise, Retail & Business Opportunity Show held at Crowne Plaza hotel, Dubai on 01st October, 2011.
Invited speaker at Mediconex Cairo Health - Health Finance & Investment Forum held in Cairo, Egypt from 18th to 20th of April, 2012.

Invited Speaker on 'Creating Trend Setting Brands' at the Interactive Seminar on Muslim Business - Best Practices, Growth & Continuity held in Durban South Africa on the 05th of May, 2012.
Invited Speaker at the 2nd Leaders in Healthcare Conference held at Nasrec, Johannesburg, South Africa on the 09th of May, 2012.

Invited speaker at Leaders in Healthcare - Hospital Build and Infrastucture Middle East 2012, Exhibition and Congress held in Dubai from 4th to 6th June 2012.
Invited Panel Sessions Speaker in "The Global Health Economics Forum" held on the 27th of June, 2012 at the Hague, Netherlands.

His pragmatic approach to his work resulted in many achievements and accomplishments that not many can match.

## Dr. Leela Prasad, USA,

Dr Leela Prasad, MD, MS (Surg), FACS, FASCRS, FRCS (Edin), FRCS (C)
2351 Castilian Circle
Northbrook, IL. 60062
Phone (847) 564-4666
Cell (847) 800-9577

He is presently at UNIVERSITY OF ILLINOIS AT CHICAGO Department of Surgery 1550 N. Northwest.
840 S. Wood Street, MC 958 #518
Chicago, IL 60612
Office (312) 996-2062
Fax (312) 996-1214
Email prasadlm@uic.edu

He holds the following tiltes: Turi Josefsen Professor in Colon and Rectal Surgery, University of Illinois College of Medicine at Chicago, Chicago, IL

Chief, Division of Colon and Rectal Surgery and Minimally Invasive and Robotic Colon and Rectal Surgery, University of Illinois College of Medicine at Chicago, Chicago, IL

Chairman, Division of Colon and Rectal Surgery, Advocate Lutheran General Hospital, Park Ridge, IL

Vice Head, Department of Surgery, University of Illinois College of Medicine at Chicago, Chicago, IL

Vice Chairman, Department of Surgery, Advocate Lutheran General Hospital, Park Ridge, IL
Director, Center of Robotic Surgery for Advocate Lutheran General Hospital, Park Ridge, IL
Consultant, Colon and Rectal Surgeon, Division of Colorectal Surgery, John Stroger Cook County Hospital, Chicago, IL

Program Director – Minimally Invasive Surgery Fellowship Program – Ethicon
Program Director – Minimally Invasive Colorectal Fellowship Program – Covidien

EDUCATION: M.B.B.S - Guntur Medical College, Guntur, India. (1966), Internship - General Surgery

Cook County Hospital, Chicago, IL 60612 (1971-1972), Residency - General Surgery

Safdarjang Hospital, New Delhi, India (1967-1968), Residency - General Surgery

Willington Hospital, New Delhi, India (1969-1971), Residency - General Surgery

Cook County Hospital, Chicago, IL 60612 (1972-1976), Specialty Residency - Colon and Rectal Surgery

Cook County Hospital, Chicago, IL 60612 (1977),

## BOARD CERTIFICATION

M.S. (Surgery) Delhi (1971),
Fellowship of the Royal College of Surgeons (Canada) (1976)

American Board of Surgery (1977) Recertification (1987, 1997, 2008)

Fellowship of the Royal College of Surgeons (Edinburgh) (1977)

American Board of Colon and Rectal Surgery (1978)

## MEMBERSHIPS

Fellow, American Society of Colon & Rectal

Surgeons
Fellow, American College of Surgeons
Fellow, Royal College of Physicians and Surgeons of Canada
Fellow, Royal College of Surgeons of Edinburgh
Association of Surgeons of India
Illinois Surgical Society
Chicago Surgical Society
Society of American Gastrointestinal Endoscopic Surgeons
Chicago Society of Colon & Rectal Surgeons
International Society of University Colon and Rectal Surgeons
Minimally Invasive and Robotic Association
Clinical Robotic Surgery Association, Founding Member

## ACADEMIC APPOINTMENTS

Clinical Assistant Professor of Surgery, University of Illinois College of Medicine at Chicago (1979-1982)

Assistant Professor of Surgery, University of Illinois College of Medicine at Chicago (1983)
President Medical Staff, Lincoln West Hospital (1986-1987)

Clinical Associate Professor of Surgery, University of Illinois College of Medicine at Chicago (1989-1999)
Clinical Professor of Surgery, University of Illinois College of Medicine at Chicago (1999-present)

Guest Examiner, American Board of
Colon & Rectal Surgery (November 1989)
Associate Board Examiner, American Board of Colon & Rectal Surgery (1990, 1991, 1992-98)
Senior Examiner American Board of
Colon & Rectal Surgery (1998, 1999, 2000)
Clinical Associate, University of Illinois College of Medicine at Chicago (1991-1999)
President, Chicago Society of Colon & Rectal Surgeons (1991-1992)
Chairman of Surgery, Forkosh Hospital (1980-1985)

Associate Chairman, Section of Colon & Rectal Surgery Cook County Hospital (1980-1985)

Director, Center for Anal Incontinence at Lutheran General Hospital (1988-present)

Chairman, Section of Colon & Rectal Surgery at Lutheran General Hospital (1995-present)
Chairman, Division of Colon Rectal Surgery John Stroger Hospital of Cook County (2003-2008)
Vice President, American Society of Colon and Rectal Surgeons (2003-2004)

Program Director – Cook County Colon and Rectal Surgery Residency Training Program (2003-2005)
Program Director – Robotic Colon and Rectal Surgery Fellowship – (2005-2006)
Regional Vice President for Central North America, International Society of University Colon and Rectal Surgeons (2006-2008), (2010-2012)

## TEACHING AWARDS

Best Teacher Award 1999: Metropolitan Group Hospitals Residency in General Surgery, An Affiliate of University of Illinois College of Medicine at Chicago

Distinguished Teaching Award 2003: Metropolitan Group Hospitals Residency in General Surgery, An Affiliate of University of Illinois College of Medicine at Chicago

Distinguished Service Award 2008: An Affiliate of University of Illinois at Chicago College of Medicine Department of Surgery – University of Illinois College of Medicine at Chicago

Lloyd Nyhus Research Award 2009: University of Illinois at Chicago, Metropolitan Group Hospitals Residency in General Surgery, An Affiliate of University of Illinois College of Medicine at Chicago.

There are 61 publications to his account, 55 Scientific Presentations, 38 Abstracts, 12 Book Chapters,

He is engaged in many RESEARCH ACTIVITIES, EDUCATIONAL ACTIVITIES. He was invited as Speaker to various Conferences, Seminars and

has given talks on the subject. He has given various video presentations, live telecasts. He is appointed Peer Reviewer on subjects: Diseases of Colon and Rectum, Annals of Surgery, Annals of Surgical Oncology

His ongoing projects include 17 subjects presently.

**Mr. A C Shanmugam**, Chairman,
Rajarajeshwari Institutions Group, Bangalore

**Mr. A C Shanmugam**, B.A., B.L.,
Founder – Chancellor Dr. M.G.R. University
Founder and Chairman of the following Institutions:
Rajarajeswari Medical College & Hospital
Rajarajeswari Dental College & Hospital
Rajarajeswari College of Engineering
Rajarajeswari College of Management Studies and Computer Applications
Rajarajeswari School of Nursing
Rajarajeswari College of Nursing
ACS College of Engineering.

## Founder of following the Trusts:

Thirumathi Kannammal Educational and Charitable Trust, Chennai
Moogambigai Charitable and Educational Trust, Bangalore
Ganesh Charitable Trust, Chennai
Sister Institutions
Chennai – Tamilnadu
Dr. M.G.R. Educational and Research Institute
ACS Medical College & Hospital
Thai Moogambigai Dental College & Hospital
Rajarajeswari Engineering College
Tamilnadu College of Arts and Sciences
Dr. M.G.R. International Institute of Hotel Management & Catering Technology
Thai Moogambigai Polytechnic College.
Arni – Thiruvanamalai District, Tamilnadu
Sri Balaji Chockalingam Engineering College
Sri Balaji Chockalingam Arts College
Sri Balaji Chockalingam College of Education
Dr. M.G.R. Polytechnic College
Sri Balaji Teachers Training Institute
A.C.S. Matriculation Higher Secondary and Nursery School
Kannamal Primary and Nursery School
Kodaikanal, Dindigul District, Tamilnadu
Kodaikanal Institute of Technology

## Mission and Vision

To provide quality and affordable education to deserving and under privileged students in urban as well as in rural areas. Many who deserved but could not afford are given generous Scholarships so that their dreams are realized. A sum of Rs. 5 crore per annum is allotted for Scholarships every year. More than 100 students are given free education in our Institutions.

Health Care rendered to the poor and needy through the following Institutions

Rajarajeswari Medical College & Hospital: One of our premier Post Graduate Medical Institute Rajarajeswari Medical College and Hospital, Bangalore caters to the need of the rural population within 50sq. miles and provides medical treatment from richest to the poorest of this region. All Medical and Surgical treatments are offered free of cost to the 1200 patients who throng the hospital daily. Ultrasound Scans, X-rays, all types of surgical and medical treatment is given free for inpatients. Sophisticated investigations like MRI, CT scan and P.C.R are done at very minimal cost. Deserving patients get medicines free of cost. 25% of the MBBS and post graduate seats in Medicine are given to deserving meritorious students through Government quota.
20 villages have been adopted.

Rajarajeswari Dental College & Hospital

Similarly Rajarajeswari Dental College and Hospital which was started in 1992 admits and trains 100 students in Under Graduate and Post Graduate and Post Doctoral courses in Dentistry. All Dental Treatments are given Free of cost 25% of the seats in BDS and MDS are offered through Government Entrance Examinations.

Moogambigai Dental College and ACS Medical College: Caters to the need of the people in and around Chennai. Other professional courses like M.Sc Nursing, B.Sc Nursing, Diploma in Nursing, Physiotherapy, Engineering and Management Studies are also being provided.
Many students benefit by these institutions.

MGR University and Research Institute: The MGR University and Research Institute which was established at Chennai is rated as one of the best 10 Universities in India.

Moogambigai Polytechnic: Moogambigai polytechnic celebrated its Silver Jubilee in the year 2009.

Orphanage at Arani: 100 orphaned children are adopted provided free food, free hostel, free education upto Post Graduate level and are also provided with job placement enabling them to settle down in life and start a family of their own.
A free marriage Hall is built in Arani to the benefit of the poor.

Member: Elected Tamilnadu Legislative Assembly from Arni
Member of Parliament elected to Lokasabha from Vellore constituency

Association with IMSA:
Rajarajeswari Medical College and Hospital is made an Institutional member of IMSA. Continuing Medical Education and Continuing Dental Education programmes are encouraged supported and sponsored under the banner of IMSA Karnataka Chapter.

## Ms. Sunita Williams,

Ms. Sunita L. Williams (CAPTAIN, USN), NASA Astronaut, National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas 77058
"I could see this borderless world only after I went to space, but there are people like Mahatma Gandhi , who could visualise all this even without going to space. Gandhiji's vision of keeping people at peace together is really a cornerstone of humanity," Sunita added.

Sunita Williams (born Sunita Pandya Krishna; September 19, 1965) is an American astronaut and United States Navy officer who holds the record for longest spaceflight by a woman.[1] She was assigned to the International Space Station as a member of Expedition 14 and then joined Expedition 15. She holds the record of the longest space flight (195 days) among female space travelers.[2] Williams also held two other records for women space travelers—most number of spacewalks (four as of 15 July 2012), and total time spent on spacewalks (29 hours and 17 minutes)—until these records were surpassed by Peggy Whitson during Expedition 16.Born September 19, 1965 in Euclid, Ohio, married to Michael J. Williams.

Sunita Williams was born in Euclid, Ohio to Deepak Pandya and Bonnie Pandya, who reside in Falmouth, Massachusetts. Deepak Pandya is a well-known neuroanatomist. Williams' paternal ancestry originates in Gujarat in India, and that of her mother in Slovenia. Williams is thus an American of Indian and Slovenian descent

EDUCATION: Needham High School, Needham, Massachusetts, 1983, B.S., Physical Science, U.S. Naval Academy, 1987, M.S., Engineering Management, Florida Institute of Technology, 1995.

She belongs to the Society of Experimental Test Pilots, Society of Flight Test Engineers, American Helicopter Association.

She has earned the special honor being Awarded Navy Commendation Medal (2), Navy and Marine Corps Achievement Medal, Humanitarian Service Medal and various other service awards. She has logged more than 3000 flight hours in over 30 different aircraft.

NASA EXPERIENCE: Selected by NASA in June 1998, she reported for training in August 1998. Astronaut Candidate Training included orientation briefings and tours, numerous scientific and technical briefings, intensive instruction in shuttle and International Space Station systems, physiological training and ground school to prepare for T-38 flight training, as well as learning water and wilderness survival techniques. Following a period of training and evaluation, Williams worked in Moscow with the Russian Space Agency on the Russian contribution to the space station and with the first Expedition Crew. Following the return of Expedition-1, Williams worked within the Robotics branch on the stations Robotic Arm and the follow on Special Purpose Dexterous Manipulator. As a NEEMO2 crewmember, she lived underwater in the Aquarius habitat for 9 days. After her first flight, she served as Deputy Chief of the Astronaut Office. Currently supporting a long duration mission as Flight Engineer for Expedition 32 and International Space Station Commander for Expedition 33.

SPACE FLIGHT EXPERIENCE: Expedition 14/15 (December 9, 2006 to June 22, 2007). Williams launched with the crew of STS-116 on December 9, 2006, docking with the station on December 11, 2006. As a member of the Expedition 14 crew, Williams served as Flight Engineer. While onboard, she established a world record for females with four spacewalks totaling 29 hours and 17 minutes of Extravehicular Activity (EVA). (Astronaut Peggy Whitson subsequently broke the record in 2008 with her five total spacewalks). Williams concluded her tour of duty as a member of the Expedition 15 crew returning to Earth with the STS-117 crew to land at Edwards Air Force Base, California on June 22, 2007. During her increment in space, Sunita Williams broke the existing record by Shannon Lucid, setting a new record for females of 195 days in space.
Williams launched on July 14, 2012 from the Baikonur Cosmodrome in Kazakhstan along with Russian Soyuz commander Yuri Malenchenko, and Flight Engineer Akihiko Hoshide of the Japan Aerospace Exploration Agency. They were welcomed on the International Space Station by NASA Flight Engineer Joe Acaba and Russian cosmonauts, Expedition 32 commander Gennady Padalka and Flight Engineer Sergei Revin on July 17, 2012. Williams is scheduled to live and work aboard the station until January 2013.

Ms. Sunita Williams is conferred the Honorary Fellowship of International Medical Sciences Academy for having met a very high standard of achievement, in recognition of her exemplary foresight, vision and professional prowess and for her outstanding academic, research and professional achievements as well as her remarkable contribution to the profession.

This honor is accorded to people of eminence who, besides paving an illustrious professional career for themselves, have made significant contribution towards the society.

## October 6th 2012 Day -1 Lecture Hall 1

08.00-09:00AM Registration & Refreshments

SESSION 1 - MEDICINE (DIABETES)

Chairpersons Dr. K. Jagadeesan & Prof. Shaikh Altaf Basha

| | | |
|---|---|---|
| 09:00-09:30AM | | TMA Pai Oration Beyond Type 1 and Type 2 Diabetes Mellitus - Any Type 3 & Type 4 Diabetes Mellitus<br>Prof. S M Rajendran |
| 09:30-09:45AM | Dr. A. Damir | Diabetic foot ulcer: management |
| 09:45-10:00AM | Dr. Agnes Mathew | Maternal Obesity: risk factor of future obesity |
| 10:00-10:15AM | Dr. Pavan Malhotra | Argyrolobium Roseum/ B cell neogenesis and Hypoglycemic prop |
| 10:15-10:30AM | Dr. Sumit Bhagra | Thyroid Hormone Replacement |
| 10:30-10:45AM | Dr. Shalini Singh | Metabolic Syndrome: Perils for Pregnancy --- |
| 10:45-11:00AM | Dr RVSN Sarma | Algoithm for diagnosis of polyuria |
| 11:00-11:15AM | Dr RVSN Sarma | Diagnostic Perplexity of Gestational Diabetes |
| 11:15-11:30AM | Q & A | |
| 11:30-12.00PM | | |
| 12:00-12:15PM | Tea Break | |

## SESSION 2 - Surgery

## Inauguration Ceremony - IMSACON 2012

Chairpersons Dr. Thukral & Prof. Manda Venkatramana

| | | |
|---|---|---|
| 12:15-12:30PM | Dr. Sarabjit Singh | Hernia Repair |
| 12:30-12:45PM | Dr. S Rohit | Condylar Osteomyelitis from Dental Extraction |
| 12:45-01.00PM | Dr Sreejith Sreenivasan | Total Glossectomy |
| 01.00-01:15PM | Dr. Jacob Kurien | Limb Salvage in Girdle Bane Tumors |
| 01:15-1:30PM | Dr. Gurpreet Sandhu | Percutaneous Aortic Valve Replacement |
| 01:30-01:45PM | Q & A | |
| 01:45-02:30PM | Lunch | |

## SESSION 3 - Radiology

Chairpersons IMSA & Prof. Hatem Abu AlAbbas

| | | |
|---|---|---|
| 02:30-02:45PM | Dr Shibani Mehra | Hepatic Imaging |
| 02:45-03:00PM | Dr. Rajul Rastogi | Imaging in Female Infertility |
| 03:00-03:15PM | Dr. Rajul Rastogi | Role of High Resolution Ultrasonography in Imaging |
| 03:15-03:30PM | Dr. R Ravichandran | Total Body Irradiation |
| 03:30-3:45PM | Dr. Amarjit Singh | Evidence based Medicine in Radiology Practice |
| 03:45-4:00PM | Dr. Naser Malas | Acute Abd Pain in Pregnancy-- role of Imaging |
| 04:00-04:15PM | Dr. Anjali Bhagra | Ultrasound in Medical Education |
| 04:15-4:30PM | Q & A | |

## SESSION 4 - MISC

Chairpersons

| | | |
|---|---|---|
| 04:30-04:45PM | Dr Suruchi Aditya | Unsafe Medicine Disposal: A Ticking Time Bomb |
| 04.45-05.00PM | Dr Lakshmi Ravindran | Low Cost Bone Mineral Density Measurement |
| 05:00-05:15PM | Dr Neeraj Jain | Pain Management: Making the difference |
| 05:15-05:30PM | Dr Neeraj Jain | Vertebroplasty |
| 05:30-05:45PM | Q & A | |

## October 6th 2012 DAY 1

## SESSION 5 - Women's Health

### Lecture Hall 2

**Chairpersons Prof. Dr. Mawahib Abd Salman Al Biate & IMSA**

| | | |
|---|---|---|
| 09:30-09:45AM | Prof. Navneet Kaur | Clinically Negative Axilla in Ca of the Breast |
| 09:45-10:00AM | Prof Navneet kaur | Clinical Profile of Benign Breast Conditions in Indian Women |
| Loss of E-cadherin/B- catenin adhesion complex in HPV-16 | | |
| 10:00-10:15AM | Dr. Rath Gayatri | associated cervical squamous cell carcinoma |
| 10:15-10:30AM | Dr. Tarek Fawsy | Risk Factors Associated with Low BMD in Ajman |
| 10:30-10:45AM | Dr. Naser Malas | Cord Blood TSH and methods of Delivery |
| 10:45-11:00AM | Dr. K K Rao | Estrogen or Raloxifene for Post menopausal Osteoporosis |
| 11:00-11:15AM | Dr. Nicole Sandhu | Breast Cancer and the Heart |
| 11:15-11:30AM | Q & A | |
| 11:30-12:00PM | Tea Break | |

## SESSION 6 - Dermatology

**Chairpersons Prof. Irene Nirmala Thomas & IMSA**

| | | |
|---|---|---|
| 12:00-12:15PM | Dr P Sugathan | Tinea Cruris Sine Tinea |
| 12:15-12:30PM | Dr. Neerja Puri | Neurofibromatosis |
| 12:30-12:45PM | Dr. M Sukanya | Proptosis Kimura's Dis |
| 12:45-01:00PM | Dr. V Padma | Leptospirosis |
| 01:00-01:15PM | Dr. MJ Sivasubramanian | Scenario of extra cellular Na and K in Psoriasis |
| 01:15-01:30PM | Q & A | |
| 01:30-02:30PM | Lunch | |

## SESSION 7 - Medical Education & Ethics Chairpersons Dr. Sandip Mukerjee & Prof. Gita Ashok Raj

| | | |
|---|---|---|
| 02:30-02:45PM | Dr. Gamini Premadasa | Impact of Learnimg Outcomes in Medical Education |
| 02:45-03:00PM | Prof Manda | Student Led Seminars-- as a teaching learning method |
| 03:00-03:15PM | Dr.S I Shehnaz | Faculty outlook towards Animal Experiments |
| 03:15-03:30PM | Dr P S Prasad | Analysis of Occupational Health and Safety in Indian Industries |
| 03:30-03:45PM | Dr. Ashok Tahiliani | Why Doctors make mistakes |
| 03:45-04:00PM | Dr. S Viswanathan | Values for Health Care Professionals |
| 04:00-04:15PM | DR. B G Ponnappa | Evidence based protection in Malpractice Litigation |
| 04:15-04:30PM | Q & A | |

## SESSION 8 - MISC

## Chairpersons

| | | |
|---|---|---|
| 04:30-04:45PM | Dr Manisha Wahab | Central Serous Ratinopathy |
| 04.45-05:00PM | Dr Gaurav Chawdhury | ATYPICAL RETINITIS PIGMENTOSA |
| 05:00-05:15PM | Dr B Narasimha Rao | Management of VITILIGO Treatment |
| 05:15-05:30PM | Dr K K Rao | Pediatric Pharmacokinetics |
| 05:30-05:45PM | Q & A | |

## October 7th 2012 DAY 2

Lecture Hall 1

09:00-09:30AM Dr. K N Rao Oration A Peep into the Concept of Tissue Engineering in Indian Mythology Prof. G Ravindran

## SESSION 9 - Infectious Diseases

Chairpersons Dr. P.K. Menon & IMSA

| | | |
|---|---|---|
| 09:30-09:45AM | Dr. Mamatha Ballal | Decreased susceptibility to Antimicrobiols |
| 09:45-10:00AM | Dr. Rajdeep Das | Procalcitonin in diagnosis and management of neonatal sepsis |
| 10:00-10:15AM | Dr. Neelam Taneja | Evidence based Lab medicine and Paradigm of antimicrobial resistance |
| 10:15-10:30AM | Dr. R A Ataee | Detection of Staph enterotoxins in Syn Fluid |
| 10:30-10:45AM | Dr. Ashutosh Talwar | Vulval Edema and Pulm TB |
| 10:45-11:00AM | Dr. Vijaydeep Siddharth | Clinical Epidemiological profile Lab studies in Influenza A H1N1 |
| 11:00-11:15AM | Dr Pankaj Bansal | Tuberculous Pleural Effusion |
| 11:15-11:30PM | Q & A | |
| 11:30-12:00PM | Tea Break | |

## SESSION 10 - Lab Medicine

Chairpersons Prof. Ishtiyaq Shaafie & IMSA

| | | |
|---|---|---|
| 12:00-12:15PM | Dr. M Suresh | Hematological Changes in Chr Renal Failure |
| 12:15-12:30PM | Dr. Sundeep Puri | Feasibility assessment of Thrombolytic therapy in Acute Stroke |
| 12:30-12:45PM | Dr. Manish Kohli | Prostate Cancer Screening with PSA- Are we there |
| 12:45-01:00PM | Dr. H S Luthra | MicroRNA in Rheumatic Diseases |
| 01:00-01:15PM | Dr Somasekhar Tolanur | Dermatoglyphics: Pattern in Schizophrenia in Indian population. |
| 01:15-01:30PM | Q & A | |
| 01:30-02:30PM | Lunch | |

02:30-3:00PM PN Rao Oration

Prof. V Raveenthiran

When a women is not a Women: Problems and perplexities of Congenital Adrenal Hyperplasia

## SESSION 11 - Peadiatrics

Chairpersons Prof. Mahmoud Elsayed Attia Shamseldeen & IMSA

| | | |
|---|---|---|
| 03:00-03:15PM | Dr. K N Meena | Antibiotics in Children with Viral URI's |
| 03:15-03:30PM | Dr. K K Rao | Pediatrics: Developmental Pharmacotherapeutics |
| 03:30-03:45PM | Dr Irene N Thomas | Pemphigus Vulgaris in Adolescence |
| 03:45-04:00PM | Q & A | |

## SESSION 12 - Surgical Misc

Lecture Hall 2

Chairpersons Dr. Pradeep K Sharma

| | | |
|---|---|---|
| 09:30-09:45AM | Dr. Pradeep K. Sharma | The role of life style and genetics as risk factors in carcinoma breast |
| 09:45-10:00AM | Dr. Soumya | Anesthesia for Bronchoscopy for neglected foreign body |
| 10:00-10:15AM | Dr. M J Ravindrenath | Accelerated Osteogenic Orthodontics |
| 10:15-10:30AM | Dr. P. Mehra | Location of Post-Parotid Branches of Facial Nerve |
| 10:30-10:45AM | Dr Ravindra Aggarwal, | A Study to Evaluate the Bio Medical Waste |

Management in Delhi; Need for intervention

## SESSION 13 - Medical Misc

Chairpersons Dr. Pankaj Lamba

| | | |
|---|---|---|
| 10:45-11:00AM | Dr VS Randhawa | Do Indian pregnant women require prenatal screening for group B streptococcus infection |
| 11:00-11:15AM | Dr.N N Anand | IVC defect in Hypertensive patients |
| 11:15-11:30AM | Q & A | |
| 11:30-12:00PM | Tea Break | |
| 12:00-12:15PM | Dr. Sanam Anwar | Waist Hip Ratio and Risk of Hypertension |
| 12:15-12:30PM | Dr. Ramar Kannan | Sleep issues in the ICU |
| 12:30-12:45PM | Dr. C V Krishnankutty | Prevention of Recurrence of Asthma and Wheezing |
| 12:45-01:00PM | Dr. B H Krishna | Respiratory rate on Spectral Analysis of Heart Rate Variability |
| 01:00-01:15PM | Dr. Mahendra Little | Psychological Stress a risk factor for Periodontal Disease |
| 01:15-01:30PM | Dr. Selva Muthakumaran | Multiple cranail nerve palsies |
| 01:30-01:45PM | Q & A | |
| 01:45-03:00PM | Lunch | |

# SESSION 1

## IMSACON 2012

# TMA Pai Oration


## Prof. S.M.Rajendran


## Abstract

## BEYOND TYPE 1 AND TYPE 2 DIABETES MELLITUS - ANY TYPE 3 & TYPE 4 DIABETES MELLITUS ?

ROLE OF THIRD EYE AND ELECTRO MAGNETIC POLUTION IN CONTROLLING DIABETES

## Introduction:

Diabetes Mellitus is increasing globally. In 1985 6% of Population (30 Millions). In the year 2000 – 2.8% of Global Population. (171 Millions), By year 2030, 4.5% of Global population - (366 Millions) soon. India will be the capital of Diabetes Mellitus.

Why and what is the cause for this enormous increase in incidence. Where is the fault? Fault with Patient, Physician, Drugs or Environment?

**ENVIRONMENT:** The Five Most important Elements (Panja Budham) Earth, Air, Atmosphere, Fire and Water are playing Major role in keeping sound health. Our Body is revolving with the ENERGY (Magnetic Energy). As long as this Energy is benign our Gene Function, Electrolyte levels and all our biological health maintained when this Energy (Electro Magnetic Pollution) turns Malignant then our biological system becomes erratic and leads to many problem. Among that, a Metabolic Malignant disorder will take place that is Diabetes Mellitus.

Electro Magnetic Pollutions called Dirty Electricity. This has been engulfed in our country. Each particles, why each atom in contaminated. Our country people are living, working, dining and sleeping with Dirty Electricity. It has become inseparable and more over, this Electricity is invisible Odourless and inaudible. It could neither touched, tasted nor sensed.

All Day to day Electronic Instruments produce Dirty Electricity. This leads to Genotoxic.

There is growing epidemiological Evidence which suggests a relationship between plasma glucose levels, Insulin section with Electro Magnetic Force (EMF).

This type of problems now termed as Type 3 Diabetes it actually experiences, spikes in the Blood Sugar and increased Heart Rate when exposed to electrified pollution.

TYPE 4 :

Low Cell Glucose (Hypoglycelia) but when Blood Sugar is Normal?

In Insulin Resistance. What happen? Both Insulin and Blood Sugar goes up, but cells are deprived. Hypoglycelia lead to Neuropathy (Neurological Diabetes).

**THIRD EYE :**The Third Eye nothing but pineal Gland unfortunately it was not studied exclusively, now only we have opened the Third Eye.

Pineal Gland Melatonin Plays a Major role in repairing the Gene. Gene exposure to EMF is brought under control by Melatonin

**CONCLUSIONS :**Diabetes Mellitus is Mysterious Metabolic Malignancy / Catastrophe affects the whole body. The  cell plays an important role in controlling our sugar but the control of  cell and Regeneration of  cell plays hide and seek game for clinician.

If you open your Third Eye & control your Dirty Electricity we can win over diabetes.


M.D., FR.C.P (U.K)., Fimsa,
Prof. Of medicine & Diabetology
Sree Balaji Medical College & Hospital
Chromepet, Chennai 600 044.

# Recent Advances in Management of Diabetic Foot Ulcer


## Author- Dr.Ashok Damir



## Abstract

Within last couple of decades Diabetes has become major health issue with India having 61million cases, a soaring one fifth of world diabetes population.

Since number of Diabetic patients are increasing hence number of diabetic patients with it's myriad complications are also increasing. Non healing Diabetic Foot Ulcer is one of the very important but most neglected complication of Diabetes.

Approximately 14% of diabetic ulcers lead to amputation & in most of the cases it is trivial foot ulcer which ultimately leads to amputation . That means if Diabetic Foot Ulcer can be managed in earlier stages then probably we can cut short no. of amputations taking place because of Diabetes.

The 3-year mortality after a first amputation has been estimated as high as 20-50%, and these numbers have not changed much in the past 30 years, despite huge advances in the medical and surgical treatment of patients with diabetes.

But prompt treatment of chronic non healing Diabetic Foot Ulcer with multidisciplinary approach can overall change the clinical outcome in non healing DFU.

Recent technological advanced combined with better understanding of the wound healing process have resulted in a myriad advanced wound healing modalities in the treatment of diabetic foot ulcers.

Ultrasonic debridement, Topical growth factors, Bioengineered skin grafts(BATs), VAC(Vacuum Assisted Closure) Therapy, Hyperbaric Oxygen Therapy(HBOT),Maggot's therapy etc. are few of new modalities which have been developed in last few decades who have revolutionised the whole management of chronic wounds particularly Diabetic Foot Ulcers. Clinical studies of using these modalities have shown some evidence of improved healing compared to standard wound care.

Though recent advances in the management of Diabetic Foot Ulcers have increased our abilities to salvage the lower limb, but all these new modalities need proper training of using them .Their cost factors is also very important particularly for third world countries.

## Conclusion

Management of nonhealing Diabetic Foot Ulcers has always been a challenging task for clinicians. During last couple of decades certain new modalities have been developed for managing this menace. Number of clinical studies have proved that judicial use of these modalities at right time & for right indication definitely help in salvage of lower limb but the need is proper training of clinicians & technicians for using them and of course cost constraint is a major issue for third world countries.



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Fortis group of Hospitals,

New Delhi,INDIA

# Maternal obesity an independent risk factor for future obesity in the newborn.

**Dr. Agnes Mathew, MBBS, MD, FIMSA.**

The incidence of obesity and overweight has almost doubled in Western societies and the trend is mirrored in Eastern nations. The 'fetal origins'hypothesis, first proposed by Barker termed the 'Developmental Origins of Adult Health and Disease' (DOHaD), states that exposure to an unfavourable environment during development, programmes changes in fetus such that the individual is then at greater risk of developing lifestyle diseases.

Thus maternal obesity and fetal metabolic programming is a fertile epigenetic soil for obesity. Infants born to obese, overweight, and diabetic mothers, even when normal weight, have increased adiposity and are at increased risk of later metabolic disease. The usual increase in insulin resistance seen in late pregnancy is enhanced in obese mothers, causing marked postprandial increases in glucose, lipids, and amino acids and excessive fetal exposure to fuel sources, which in turn increases fetal size, fat stores, and risk for diseases.

In a longitudinal study of women with GDM, it was noted that obesity was an added risk for complications and poorer outcome for the fetus. The women entered the study at diagnosis of GDM as per protocol testing in the antenatal clinic. BMI was calculated and groups divided on its basis. Glycaemic control was achieved by diet alone or diet and insulin as needed. If control was not satisfactory, the case was excluded from the study. The pregnancy was followed up till delivery, the mode of delivery and fetal outcome were noted. It was seen that the out come measured by lower APGAR score, macrosomia, and neonatal ICU admission were all directly proportional to the maternal BMI even when the glycaemia was controlled. This proves that obesity is an independent risk factor for complications, macrosomia and future obesity.

Professor OG, Pondicherry Institute of Medical Sciences, Pondicherry

# Argyrolobium Roseum Possessing Beta Cell Neogenesis and Hypoglycaemic Activities – A hope for the Treatment of Type 2 Diabetes Mellitus

Pavan Malhotra and O.P Gupta

## Abstract

Title: Argyrolobium Roseum possessing beta cell neogenesis and hypoglycaemic activities – A hope for the treatment of Type 2 Diabetes Mellitus.

Name of the author: Pavan Malhotra and O.P. Gupta

Name of the Institution: Department of Pharmacology & Therapeutics, Acharya Shri Chander College of Medical Sciences and Hospital, Sidhra Jammu. 180 017, India.

Introduction: Argyrolobium roseum is not reported for any biological activity or therapeutic use. The plant was taken up for study on the basis of information that some cases of diabetes had been treated by a person residing in a hilly area by the use of this plant.

## Objective:

To find out radical treatment for type – II diabetes

Methodology: The plant powder was subjected to fractionation with different solvents. A number of fractions were obtained and evaluated for hypoglycaemic activity on normal fasting rats. The alcohol extracted fraction (AR) showed maximum activity and was taken up for detailed study. Hypoglycaemic activity was also observed on streptozotocin (STZ) treated and glucose loaded hyperglycaemic rats. The evidence of neogenesis of beta cells came through an experimental model that was designed to explore the said activity. It is based on the use of that dose of STZ that caused death after a period of 2-4 weeks preceded by hyperglycaemia and body weight loss compared to a high dose that caused early death. A test drug if possessing beta cell neogenesis activity can be tested during the said period of 2-4 weeks. It was 40 mg/kg I.P. of STZ that was found to be a suitable one.

## Results and Discussion:

The rats were treated with test drugs from day 7 to day 21 of STZ treatment and observations were carried out till day 42. While the rats of the control and glipizide treated groups suffered from rising hyperglycaemia, body weight loss and death by day 28, the AR treated rats had their blood sugar and body weight gradually restored back to normal and they continued to survive till day 42.

On this day the status of beta cells of these rats was determined by testing the hypoglycaemic dose of AR. The hypoglycaemic effect recorded was as good as recorded in normal animals. This clearly indicated the neogenesis of beta cells besides the other observations made i.e. normalization of blood sugar, recovery of body weight and no mortality.

## Conclusions:

AR tested in 200 & 100 mg/kg p.o doses for the said activity showed dose dependent effect. Activity guided fractionation of AR for isolation and identification of active constituent revealed the presence of D-pinitol (3-O-methyl-chiroinositol) already reported for possessing insulin like activity. While hypoglycaemic activity recorded with AR is to be attributed to D-pinitol, the beta cell neogenesis activity whether it is due to D-pinitol or some other constituent of AR remains to be confirmed by cytological evidence.

Keywords: Argyrolobium roseum (Leguminosae), hypoglycaemic, stretpozotoin, apoptosis, beta cell neogenesis, D-pinitol.

Professor & Head, Department of Pharmacology & Therapeutics, Acharya Shri Chander College of Medical Sciences and Hospital, Sidhra Jammu. India.

# Metabolic Syndrome; Perils for Pregnancy and Precursor for Childhood Obesity

**Shailini Singh, MBBS, FRCS (C), FACOG.**

**Abstract:** Introduction: In USA metabolic syndrome is rampant with pregnancy associated with GDM, Type 2 diabetes, hypertension and hyperlipidemia. These pregnancies are at high risk for complications associated with pre eclampsia leading to prematurity.

**Objective:** To analyze the outcome of diabetic pregnancies stratified by BMI and classified by hemodynamic state with impedence cardiography.

**Methodology:** We performed a retrospective review of diabetic pregnant patients who had hemodynamic parameters determined by impedence cardiography prior to 22 weeks gestation. Diabetic management was evaluated by using memory meters at 24, 28, 32, and 36 weeks. Patients were categorized by hemodynamic s: normal CO< 7.4L/min., and MAP <100mm. Hg. , Hyperdynamic CO.7.4 L/min., mixed hemodynamic SVR>1200dyne*sec*cm.-5. They were also stratified by BMI, normal 18.50 -24.99, overweight 25-39.9, Obese >40. Using the same protocol of diabetes management, ultrasound guided abdominal circumference measurement to direct BS control and targeted treatment based on hemodynamic data and stratifying the pregnant diabetics based on BMI.

**Results:** Normal hemodynamics were associated with decreased pre-eclampsia rate (4.5%VS16.1%, vs 60.0%, p<001. decreased incidence of Oligohydramnios, larger mean BW %( 71%vs59% vs 50%) and longer mean GA (36.6vs 34.4p=.046) the mixed hemodynamics group had the greatest incidence of pre–eclampsia (OR=11.25, p=.028), lowest BW % and shortest GA. NO detectable neonatal outcome existed.

Using the above protocol we were able to normalize the birth weight. Normal BMI 58%, overweight 60% and obese 66%.

Conclusion: Impedence cardiography along with Ultrasound guided aggressive management of diabetes can be used to predict poor outcomes and also normalize the fetal weight, hence changing the in utero programming.

Professor of Ob. /Gyn. Director of Maternal Fetal Medicine at University of Buffalo, 239 Bryant Street, Buffalo, NY

# Algorithm for the Diagnosis of Polyuria-IMSACoN 2012 Abstract


## Dr. R V S N Sarma


## Introduction

. Polyuria is a very common clinical dilemma, often not worked up systematically

. Routinely we ascribe it to diabetes mellitus, but there are many causes to consider

. PU -Passage of Excessive quantity of urine, PU implies water or solute diuresis

. At least more than 2.5 to 3.0 L /dav, Or Urine of > 40 ml/kg/day

. Polyuria usually associated with Polydipsia which results in an excess water intake

. Water intake of more than 100 ml/kgld (6 L /d)

. Frequency of urine -Frequent passage of small amounts of urine -Many causes

. UTls, BPH, UT stones, Urinary lncontinence

## Classification

. Endocrine : DM, CDI (Central Diabetes lnsipidus), Cushing's syndrome

. Renal : CRF, Relief of UT obstruction, CPN, NDI (Nephrogenic Dl), Fanconi syndrome

. latrogenic: Diuretic therapy, Alcohol, Lithium, Tetracyclines

Metabolic:Hypercalcemia, Potassiumdepletion

. Psychological : PPD or CWD

. Other causes: Sickle-cell Anemia, PSW

Diabetes Insipidus (Dl) -4 Types

1.

Central Dl (Neurogenic) -El of the ADH or AVP

2. Nephrogenic Dl, Non response of kidneys to ADH

a.

Primary Polydipsic Dl -suppression of ADH by excessive fluid intake 3.

Dipsogenic, Psychogenic or latrogenic Dl -excessive water drinking as Rx.

4. Gestagenic Dl, in pregnancy due to ADH destruction by placentalvasopressinase.

Algorithmic Approach to the Diagnosis of Polyuria

r A three step algorithm will be presented and discussed


MD, M.Sc (Canada), FCGP, FIMSA, FRCP {Glasgott}, FCCP (USA)

# Diagnostic Perplexity of Gestational Diabetes (GDM)

**Dr. R V S N Sarma**

## ABSTRACT

## Introduction

. Several RCTS have established the benefits of standard treatment of GDM

. The issue of Dx. of GDM is apparently simple. This paper highlights its perplexity

. The opinion on the method of screening and diagnosis of GDM is still unsettled

. The National Diabetes Data Group (NDDG), The W.H.O., The American Diabetes

Association, Carpenter-Coustan criteria, International Association of Diabetes and

Pregnancy Study Groups (IADPSG), Diabetes In Pregnancy Study in India (DIPSI)

Hyperglycemia and Adverse Pregnancy Outcomes (HAPO)-all have formulated their

sets of criteria and guidelines. Agreement and uniformity in the recommendations

still eludes. Controversy is more than consensus. Need an easy, simple one point test

. Indian scenario is even complex. Constrained resources, man power, community Dx.

Major Issues of disagreement in the diagnosis of GDM

. Screening versus Diagnosis; Universal versus Selective Screening

. 100 C OGTT, 75 g OGTT, 50 g GCT (Glucose Challenge Test)

. One sample, two samples and three samples; Need for repetition of screening

. Two step procedure versus One step procedure -diagnostic accuracy issues

. Test thresholds and cut offvalues -implications on sensitivity and specificity

. Two abnormal values versus one abnormal value -what do we miss

. Fasting Plasma Glucose (FPG) -?Non suitability in Asians with high insulin resistance

. Now, the use of Glycated Hemoglobin and Glycated Albumin as ?screening tests

. Timing of the test at first antenatal visit or 20, 28 and 34 weeks of pregnancy

. Cost effectiveness of the test procedures -Utility of glucometers

Focus of this presentation

. A quick and thorough review of the various recommendations of study groups

. Debate on the advantages and short falls of the acclaimed recommendations

. Guidelines for use in Indian scenario -Single one step procedure for community Dx.

. Recommendations ofthe 4th and 5th International Workshops on GDM

. If we get discordant results when we apply multiple tests -clinical implications

. The clinical implications of missed diagnosis by adopting one step procedure

. Follow u p a diagnosed case of GDM -Test recommendations -5M BG issues

. Finally, the Dx. issues in a diabetic women becoming pregnant rather than GDM

MD, M.Sc (Canada), FCGP, FIMSA, FRCP {Glasgott}, FCCP (USA)

# A Peep into the Concept of Tissue Engineering in Indian Mythology


## ABSTRACT

Tissue engineering started as a technique to transplant organ from one person to other. When the requirement for organ or tissues for transplant exceeds the demand, artificial materials were used to replace the required organ. Presently the field has grown as a new inter-disciplinary area. Combining cells, engineering and materials with use of biochemical factors with the goal of growing tissues or organ or improving or replacing biological functions. End products of this venture are enormous like biomaterials, artificial organs, tissue substitute, application of stem cells etc. Throughout the world, lot of research is going on this area for the benefit of mankind.

Even though all these research and development looks like recent development, really Indian mythology indicates all these activities were well aware even during pre historic days. These latest inventions are finding a place in our temples, epics and bed time stories. Some of the examples are

Structure of the god Pillayar is Elephant trunk with human body - organ of animal fixed to human being

Replacement of own eye to a

damaged eye by Kannapar -Organ to organ transfer

Having 100 children in a Single delivery - In vitro fertilization Every droplet of blood of a

Demon becoming another demon - Cloning technique Replacement of golden hand

Instead of the amputated hand - Biomaterial

Most of gods having 4 or 6 hands - Extra skeletal system

These examples clearly indicate that our forefathers were well aware of every aspect of tissue engineering.

# SESSION 2

## IMSACON 2012

# INNOVATIVE AND REGENERATIVE HERNIA REPAIR WITH DYNAMIC IMPLANTS

***DR. SARABJITSINGH; M.S (SURGERY), FAIS, FIMSA, MNAMS, FMAS, FICS, FIAGES**

## ABSTRACT

Hernia is a common surgical condition and surgery for hernia is the most commonly performed surgery. A large variety of surgical procedures are done to treat hernias. Still the problems of recurrence and chronic pain, post operatively affect the quality of life of the patients. Practice of surgery has marched from being merely life and limb preserving to being enhancer of post operative quality of life. Patient reported outcomes take precedence over clinical outcomes and this has encouraged surgeons to innovate. New innovative method of treatment of hernias with 3 D dynamic implants which result in regenerative hence physiological healing of hernias is discussed .We also present our initial experience with these implants. We have used dynamic implants in 11 inguinal and 10 ventral hernia repairs at GMSH-16,Chandigarh with good results after a follow up period of upto one year.

## INTRODUCTION

Hernia is a very common, benign condition. Most of the surgeons perform hernia surgeries in large numbers using variety of techniques. Hernia surgery is performed in all kinds of surgical set ups ranging from very basic to most advanced and it is done everywhere may it be rural, semi-urban and urban areas in all the countries throughout the world. Hernia surgery is performed by surgeons- juniors as well as seniors ie... experienced and not so experienced. Bassini's repair was a gold standard treatment for inguinal hernias before the introduction of meshes as prosthetic materials. Herniorraphies were replaced with hernioplasties using meshes and Lichtenstein procedure became gold standard treatment. Laparoscopic management of hernias with use of meshes came in, but needed costly equipment and a learning curve to master the technique of laparoscopic treatment of hernias. Laparoscopic treatment is associated with higher risks and complications for management of a benign surgical condition (hernia), more so in inexperienced hands. Meshes used in open hernia repair are made up of various materials with different weights and pore sizes. The management of this benign condition with meshes helped in reducing the rate of recurrent hernias significantly. Recurrences in cases after mesh repairs and mesh associated significant complications like inguinodynia are observed in patients .These complications have a significant impact on quality of life of the patients. Polypropylene mesh induced inflammation and fibrosis leading to formation of scar like tissue with involvement of the vas, vessels of the spermatic cord and nerves in the inguinal canal are becoming a cause of concern as these can lead to complications like –abnormal fertility, ischemic orchitis and neuralgias.Surgeons need to relook at the physiology of inguinal canal which is a dynamic structure and we need to understand the etio-pathogenesis of hernia as a disease. Studies have shown that hernia is a degenerative disease and this has been shown on histological studies of the tissues of the inguinal canal. Repair of dynamic inguinal canal needs to be of a dynamic nature instead of static and fixed meshes which should induce regeneration of healthy tissues. 3 D dynamic implants are very useful in physiological hernia repair.

## REVIEW OF LITERATURE

Inguinal hernia most probably has been a disease ever since mankind existed. It occurs in different kinds of animals, particularly primates; even prehistoric human beings were affected with the disease. The surgical history of inguinal hernias dates back to ancient Egypt. From Bassini's heralding of the modern era to today's mesh-based open and laparoscopic repairs,

this history parallels closely the evolution in anatomical understanding and development of the techniques of general surgery (1) .Accounting for 75% of all abdominal wall hernias, and with a lifetime risk of 27% in men and 3% in women, inguinal hernia repair is one of the most commonly performed surgeries in the world (2). In the United States, inguinal herniorrhaphy accounts for approximately 800,000 cases yearly (3). It is estimated that of all hernias, 66% are indirect and 33% direct (4).Hernias are typically repaired through a surgical procedure called herniorrhaphy, in which the surgeon repairs the hole in the abdominal wall by sewing surrounding muscle together or by placing a patch called "mesh" over the defect. Most surgeons make an incision at the site of the hernia in order to gain access to the defect, although some surgeons prefer to do these procedures laparoscopically. During a laparoscopic hernia repair, the surgeon makes very small incisions to pass through specialized instruments and an endoscope, a device that allows the surgeon to see the abdominal area without opening the patient up. Laparoscopic hernia repair generally results in less postoperative pain and recovery time than open surgery.Current inguinal hernia operations are generally based on anatomical considerations. Failures of such operations are due to lack of consideration of physiological aspects. Many patients with inguinal hernia are cured as a result of current techniques of operation, though factors that are said to prevent hernia formation are not restored. Therefore, the surgical physiology of inguinal canal needs to be reconsidered. A physiologically dynamic and strong posterior inguinal wall and the shielding and compression action of the muscles and aponeuroses around the inguinal canal are important factors that prevent hernia formation or hernia recurrence after repair. In addition, the squeezing and plugging action of the cremasteric muscle and binding effect of the strong cremasteric fascia, also play an important role in the prevention of hernia. Inguinal hernia repair still remains a problem because of the (a) high recurrence rates seen in the hands of the junior surgeons, (b) risky dissection of the inguinal floor in the Bassini/ Shouldice repair and (c) infection and chronic groin pain following mesh repair.

The successful management of any problem depends on the understanding of its patho-physiology. In this context, some questions related to the physiology of the inguinal canal or factors that prevent herniation still exist. Lateral and cephalad displacement of the internal ring beneath the transversus abdominis muscle and approximation of the crura results in a shutter mechanism at the internal ring (5). When the arcuate fibers of the internal oblique and transversus abdominis muscle contract, they straighten out and move closer to the inguinal ligament (shutter mechanism) at the inguinal canal (6,7). This opposite movement (upward & downward) of the same muscle needs proper explanation. The term "obliquity of the inguinal canal" is not a perfect description since the spermatic cord is lying throughout its course on the transversalis fascia. Repeated acts of crying, thereby increasing the intra-abdominal pressure do not increase the incidence of hernia in new born babies inspite of the almost absent "obliquity of the inguinal canal" or "shutter mechanism". Similarly, every individual with a high arch or a patent processus vaginalis does not develop hernia(8) . Factors that are said to prevent herniation are not restored in the traditional techniques of inguinal hernia repair and yet 70–98% of patients are cured. Inguinal hernia repair is one of the most common performed surgical procedure. Inguinal hernia repair is associated with long term risks of pain and discomfort. In 1996 Cunningham et al were the first to report a pain incidence of 63% after one year (9). Five years later, in a large cross sectional cohort study the rate of chronic pain was 29%. This complication was associated with functional impairment in more than half of those with pain (10). Chronic pain accounted for restriction in daily activities in up to quarter of patients (11). In an updated review the risk of a chronic pain state with clinically significant effects on daily activities was about 12% (12). The foreign body response to meshes resulted in axonal edema, loss of myelinated axons ,peri and endoneuronal edema and subsequently pain (13). Pain may also be dependent on the method of fixation. Sutures may cause ischaemia , muscle contraction or nerve

damage resulting in pain. This is corroborated by the fact that removal of sutures can be effective treatment in patients with pain (14).There are several techniques for mesh implantation, but most involve sutures to anchor a mesh in position and prevent migration, wrinkling and curling. Sutures that anchor the mesh are blamed for extensive tissue tension and nerve entrapment leading to prolonged post operative pain. Even the application of absorbable sutures instead of non-absorbable ones does not solve the problem. Chronic groin pain following inguinal hernia repair is a significant, though under-reported problem. Complications associated with sutured fixation of the mesh have prompted surgeons to use atraumatic fixation using substances such as human fibrin glue. These adhesives have shown reduced incidence of chronic groin pain, foreign body sensation and groin numbness in both randomised trials and observational studies (15). Avoiding chronic groin pain should be a prime goal for any hernia surgeon, considering that 5-7% of patients with post-herniorraphy groin pain will sue their surgeons (16). Practice of surgery has marched from being merely life and limb preserving to being enhancer of post operative quality of life. Patient reported outcomes have always taken precedence over clinical outcomes and this has encouraged surgeons to innovate (17). Introduction of polypropylene prosthesis by Francis Usher, brought an era of progressively decreasing recurrence rates. Success with polypropylene meshes is associated with formation of mesh aponeurosis scar tissue complex. Inflammatory response induced by polypropylene is integral to mesh aponeurosis scar tissue complex formation, but continuation of inflammation beyond this complex has raised many concerns . Markers of inflammation continue to play around for years in the polypropylene implanted tissues around inguinal region (18). The debate now is about potential polypropylene induced insults to structures contiguous to inguinal region. Insult to testicular vasculature, adjoining nerves and vas can lead to ischemic orchitis and even atrophy. Myelin degeneration, endoneuronal and perineuronal edema, fibrosis and axon loss can be induced by polypropylene leading to chronic neuropathic inguinodynia. Entrapment of vas in mesh aponeurosis scar tissue cicatrix can impair the vas motility and intraluminal motility leading to obstructive azoospermia apart from dysejaculation. Post herniorraphy secondary infertility in males cannot be wished away despite the lack of randomised trials which are not possible due to ethics of obtaining preoperative semen parameters (19). Hence a rethink on polypropylene meshes is required as meshes have been regarded as mechanical overkill .Complications associated with meshes are probably due to mesh contraction and entrapment of structures of inguinal canal in the scar tissue .

## UNDERSTANDING ETIOLOGY AND PATHOGENESIS

Etiology and pathogenesis of inguinal hernia still represent an open question. Despite the advances in surgical materials and techniques, little progress has been achieved concerning the dilemma of hernia origin. In recent literature few articles are focused in examining the changes of the tissue structures in the inguinal region affected by hernia protrusion. To fill this lack of knowledge, Amato et al studied the tissue specimen of 30 fresh male cadavers with inguinal hernias. In these cadavers tissue samples were excised from the structures close to the hernia orifice following a specific method. The samples were subjected to histological study.In order to accomplish an adequate control of the study group, in 15 autopsied male subjects without hernia tissue specimens were resected from equivalent sites of the inguinal area with the same modus operandi. The tissue excised from the hernia border demonstrated multiple histological changes of the structures surrounding the hernia. In all resected specimens the most significant feature was a constant verified fibrohyaline degeneration of the myocytes, often surrounded by fatty dystrophy of the muscle fibers. Besides inflammatory infiltration composed by lymphohistiocytic and plasmacellular elements, they found important changes of the venous structures, such as venous congestion and vein fibrosis. More significant findings were detected on the arterial structures: thickening of the

arterial wall due to medial hyperplasia leading to sub-occlusion or even complete obstruction of the arterial patency. Several nerve axons were detected between the altered myocytes. The nervous structures clearly demonstrated fibrotic degeneration and manifest atrophy of the axons as well as the thickening of the myelin sheath. On deeper analysis of the histological changes of the tissue bordering the hernia opening, several outcomes were imagined regarding the possible impact this damage has on the physiology and kinetics of the groin:

Degenerative changes of motor nerves and thickened myelin sheath which have been seen, could be linked to the reduced motile activity leading to muscle atrophy and, consequently, to a reduced contractile response (as a physiological barrier) to the visceral impact when abdominal pressure arises. A decreased blood supply leading to ischemic degeneration of the groin structures may represent the result of the artery sub occlusion or obstruction, Venous congestion, vein fibrosis and inflammatory infiltrate could embody the outcome of a steady compressive effect exerted by the abdominal viscera to which follows tissue congestion and impaired metabolism. Hyaline degeneration, fibrosis and fatty dystrophy of the muscle fibers within the groin could be the result of the chronic, degenerative changes to the vascular and nervous components seen in that area. These multifactorial damages are probably amplified by the effect of the visceral compression upon the lower abdominal wall. (20)

All these findings could also explain the alterations of the collagen in the groin area evidenced by several scientists, the described results of the histological study in tissue bordering the hernia opening could represent a further contribution in understanding the reasons of the multifactorial causes leading to the weakening of the inguinal area and to hernia protrusion.As of now, the techniques being used for hernia repair, cover the inguinal area which is one of the most mobile areas in the human body ,with static meshes which are suture fixed to surrounding structures. Meshes are flat and as these are fixed with sutures this leads to stiffness and shrinkage of the implant. This is a cause of discomfort and chronic pain. The shrinkage of the mesh can set free the hernia opening, which was previously covered with mesh, this is a prelude to hernia recurrence. The 3 D dynamic implants used in hernia repairs do not cover, but full thickness obliterates the muscular gap where hernia arises. These dynamic implants promote the re-growth of healthy tissues in the area of the hernia opening, establishing a condition similar to normal abdominal wall structures. These dynamic implants move in harmony with the inguinal structures promoting regeneration of new and vital tissue inside the structure and enabling a true barrier which closes the hernia orifice. The dynamic implants do not require any fixation. The dynamic implant does not shrink, does not cause discomfort and it causes a lower post operative pain.The results of combined procedure, scar removal, dilation and implant delivery, led to thoughtful suggestions regarding the anatomy and the physiology of the inguinal canal. The procedural adhesiolysis during indirect inguinal hernia repair has always shown the well described concentric muscular arrangement formed by the internal oblique and transversus muscles. This circular shaped muscular structure is often recognised as a static barrier that, due to weakness and/or together with other causes, fails in its role and allows indirect inguinal hernia protrusion. Its steady tightening motion after divulsion and the insertion of a lamellar implant is always accompanied by a strong gripping action, which is not seen prior to divulsion. This indicates that it could correspond to a sphincter: the 'inguinal sphincter.'' The impairment of this sphincter could be the cause of the inguinal canal's patency and the development of hernia. (21).

## OUR EXPERIENCE

We have used 3 D dynamic implant in repair of 10 ventral hernia cases and 11 inguinal hernia cases at Department of Surgery, GMSH-16, Chandigarh .In all these cases implants were deployed and no sutures were used . All the patients were taken up under spinal anaesthesia after getting all routine investigations done

Post operative period was uneventful and there was no significant post operative pain in the immediate post operative period . None of the patients had chronic pain following surgical

| HERNIA CASES | INGUINAL | VENTRAL |
|---|---|---|
| NO. OF CASES | 15 | 10 |
| SEX | ALL MALES | 5 MALES,5 FEMALES |
| TYPES | 9 RIH, 5 LIH.<br>ONE B/L ,<br>10 INDIRECT,<br>5 DIRECT<br>1 IRREDUCIBLE | 5 INCISIONAL,<br>1 RECURRENT,<br>4 PARAUMBILICAL |

RESULTS

INGUINAL HERNIA REPAIR

| | |
|---|---|
| AVERAGE AGE | 25 YEARS |
| AVERAGE OPERATIVE TIME | 20 MINUTES |
| AVERAGE HOSPITAL STAY | 02 DAYS |

VENTRAL HERNIA REPAIR

| | |
|---|---|
| AVERAGE AGE | 40 YEARS |
| AVERAGE OPERATIVE TIME | 42 MINUTES |
| AVERAGE HOSPITAL STAY | 05 DAYS |

procedure up to a follow up period of upto one year. No recurrence has been seen in these cases, even though it is a short period of follow up as yet. When we compare the results in terms of post operative pain and feeling of tightness/ hardness seen in our other patients where we use meshes to repair hernias, it is not seen in cases of dynamic implants. This is our initial experience with use of dynamic implants and we need results in more cases and further studies to compare the benefits of dynamic implants as compared to static meshes.

## VENTRAL IMPLANT

In ventral hernia, sublay mesh with straps is

## FOLLOW UP
## HERNIA REPAIR FOR PERIOD UPTO ONE YEAR

| | INGUINAL | VENTRAL |
|---|---|---|
| SEROMA | NIL | ONE |
| RECURRENCE | NIL | NIL |
| INFECTION | NIL | ONE |
| CHRONIC PAIN | NIL | NIL |

## TECHNIQUE AND FEATURES OF DYNAMIC IMPLANTS

## INGUINAL IMPLANT

Inguinal implant eliminates the need for fixation and is 100% fixation free. It improves scar generation and hence reduces recurrence rates and improves patient comfort .There is a system to deliver this uniquely designed 3 D autostatic implant as a result of which the more the body tries to expel-the more it grips. It is a dynamic implant which moves with surrounding tissues and creates a thick, living progressive tissue barrier.

First the blocking adhesions of the sac are dissected out. Next we break the blocking adhesions in the muscle wall by divulsion that is by dilatation fracture. This is followed by introduction of dynamic implant that applies radial force to be gripped but allows physiologic movements. The rear disc of the implant helps in preventing expulsion and it also acts as a shield to prevent future muscle damage.The lamellar structure of the implant does not impinge on the spermatic cord. Implant is dynamic as it compresses and relaxes with change in intra-abdominal pressures.

placed in preperitoneal or retromuscular space. Straps help in elimination of suture fixation. Straps are 20mm wide and are brought out through tissue tunnels using specially designed needle which is 3mm wide. The straps roll out into a cylinder and get fixed by friction as elastic recoil increases outward force. Straps help in creating a very high holding force immediately after implantation. Straps are part of the implant and not an adjuvant. When there is increase in intra-abdominal pressure, load is transmitted to the straps and not to the tissues. Strap fixation gets stronger as it incorporates in the body. Tissue ingrowths help in incorporation of the straps into the tissues for the length of the tunnel.

## SUMMARY

3 D dynamic implants promote a regenerative and physiologic healing for hernias which occur as a result of tissue degeneration. No suture fixation is required which helps in preventing various problems seen in post operative period. Dynamic implants help in improving quality of life of the patients.

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# Condylar Osteomyelitis Secondary to Dental Extraction: An Unforeseen Consequence

**Dr. Rohit S. MDS (Oral and Maxillofacial Surgery)**

## ABSTRACT

Osteomyelitis of the mandibular condyle secondary to dental extraction is an uncommon disease with a scarce mention in the medical and dental literature. Osteomyelitis is an inflammatory process involving cortical and cancellous bone. In the maxillofacial region, the mandible is the most frequently affected bone. In the most majority, a bacterial focus can be identified as the origin of the disease. Because of the anatomic location of the condyle, it is often not easy to obtain enough diagnostic information from plain radiography.

The general dentist is usually the first healthcare practitioner to evaluate oral disease, initiate treatment and manage complications. Osteomyelitis is a well known, but rare complication of dental extractions. This clinical case describes osteomyelitis of mandibular condylar process, coronoid process and ramus in a 30 year old woman as a severe complication following third molar removal. Timely intervention with a less invasive procedure saved the patient from the significant morbidity possible with infection in this region.

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# Total Glossectomy: Concepts,Techniques and controversies

Name of authors :- Prof. Jacob Kurian MS,MCh (Oncology),FIMSA

" Life,Liberty and Pursuit of happiness" American Freedom Declaration

The treatment of advanced malignancies of the tongue with total glossectomy is controversial. Poor survival rates and limited palliation afforded by radiotherapy alone,together with progress made in reconstructive surgery in restoring mucosal continuity after large resections make total glossectomy reasonably indicated for advanced carcinoma of the tongue.

We hereby present an interim report of an ongoing study started in November 1992 and ending in November 2012.

In our series 37 patients underwent total glossectomy for advanced carcinoma of the tongue without laryngectomy.Only in 9 cases a temporary tracheostomy was done. Reconstruction was done using regional and free flaps.Analysis was done with regard to operative management.oral reconstruction,rehabilitation of deglutition ,speech and survival.four categories of patients were included

Large primary tumours of the tongue and tongue base.

Recurrence after initial radiotherapy,brachyth erapy,chemotherapy or a combination of these modalities.

Recurrence after initial surgery and radiotherapy.

Double primary tumours

In cases where total glossectomy is indicated,preservation of larynx is worthwhile and can be justified unless the larynx is involved by the tumour,there is risk for aspiration or extensive pharyngeal resection hampers the swallowing. Total Glossectomy with laryngeal preservation in properly selected patients provides local and regional control.It is a reasonable compromise in the quality of life as it preserves the mechanism of deglutition and voice.

Earnest attempts are thus being made to improve the quality of life in the pursuit of happiness of cancer victims Dr Sreejith Sreenivasan MS(ORL-HNS)

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# Limb Salvage in Girdle Bone Tumours

Author : Prof. Jacob Kurien, MS (Gen. Surgery), MCh (Oncology), FIMSA

"Life is Mobility and Mobility is Life"

In this paper Limb Salvage in Girdle bone tumours during the period 1992 - 2007 are studied.

The conventional Method of treatment for Girdle Bone Tumours are hind quarter amputation or fore quarter amputation. In the present series we are presenting our series of 14 cases of innominate bone tumours and 9 cases of Sacral Tumours of which 13 were operated. 7 innominate bone excision (Internal Hemipelvectomy) - Limb Salvage and 2 Conventional Hemiplevectomy and 4 Sacrectomies.

Internal Hemipelvectomy is Limb salvage procedure for innominate bone tumours. With regard to shoulder girdle 7 cases are included in the series of which 3 underwent Tichoff Leinberg procedure 1 Scapulectomy and 3 Fore quarter amputation. Ennekings classification was followed. Simple reconstructions with nails and screws were done as indicated and no Prosthetic Reconstruction was done. Post operatively 2 patients expired due sepsis secondary to chemotherapy induced neutropenia. Patients were followed up for six months to four years. All patients had good mobility. 2 patients of Sacrectomy had tumour recurrence. 3 patients were lost for follow up.

In conclusion procedures mentioned in our series can be attempted as Limb Salvage procedures although they are major complex collaborative surgeries.

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# SESSION 3

## IMSACON 2012

# Ultrasound in Medical Education: Feasibility and Role in Internal Medicine Residency Training

## Background

New standards of care recommend ultrasound (U/S) guidance for thoracentesis and central line placement; however these skills are routinely taught in medical school or Internal Medicine residencies.

## Summary of Work

We developed and implemented training workshops using didactic lectures and a simulation setting to train Internal Medicine interns on the use of U/S. Sixty-five interns completed surveys, image identifications, and skills tests. Image identification included U/S images of pleural effusions, ascites, renal parenchyma, and the thyroid. Skills tests involved identification of the internal jugular vein (IJV), appropriate gain/depth, and demonstration of compressibility of the IJV. Identification numbers were assigned to all participants and allowed for direct pre- and post-intervention comparisons.

## Summary of Results

Following the workshop, identification of air improved from 32% to 98%; fluid improved from 72% to 100%; ascites improved from 10% to 58%; the kidney improved from 43% to 97%; the thyroid improved from 31% to 97%, and pleural effusion improved from 6% to 69%. The number of participants able to set gain improved from 42% to 94% and depth from 30% to 88%. The number of participants able to locate the IJV and demonstrate compressibility improved from 61% to 94%. The number of those who obtained an image in under 2 minutes rose from 64% to 88%; mean procedure time in this group decreased from 73 (SD 27) to 50 (SD 27) seconds. $P<0.001$ for all comparisons.

## Conclusions

Ultrasound is extremely useful for augmented physical examination and guided procedures to Internal Medicine residents. Carefully structured workshops with hands on component can improve residents' knowledge and skills in the use of U/S, and may lead to improved procedural outcomes and enhanced patient safety.

# Imaging in Female Infertility

Dr. Rajul Rastogi

## Abstract:

Infertility is defined as the inability of the couple to achieve conception within 12 months. Approximately 10% of the couples suffer from infertility with nearly equal affection of both sexes.

## Introduction:

There are multiple causes of female infertility that are broadly divided in to uterine, ovarian & tubal causes and are further subdivided into infective / inflammatory, tumoral and congenital categories. Ultrasonography (USG) especially endovaginal USG (EVS) and magnetic resonance imaging (MRI) are probably the best imaging modalities for studying infertile females in addition to hysterosalpingography. However, hysterolaparoscopy (HLA) is still the gold standard as it is not only diagnostic but also a therapeutic technique.

## Objective:

To assess the relative role of USG and MRI in detecting causes of female infertility

To compare the relative accuracy of USG and MRI in detecting causes of female infertility using hysterolaparoscopy as a gold standard technique.

## Methodology:

Twenty-five females presenting with infertility were included in the study. Females with primary amenorrhea were excluded.

All the patients included in the study underwent transvaginal & transabdominal USG and MRI pelvis on the same day. 3D USG and color / power Doppler study was included in USG examination.

All the patients who revealed positive imaging and clinical findings were taken for hysterolaparoscopy within one week of imaging.

## Results and Discussion:

USG & MRI are equally accurate in detecting polycystic ovaries.

MRI is more accurate than USG in detecting tubal disease and in detecting & determining the extent of pelvic inflammatory disease.

MRI is parallel in accuracy to HLA in detecting anomalies of tubes, adnexa & ovaries.

USG and MRI are highly accurate in detecting uterine anomalies and in detecting endometrioma, adenomyosis, endometrial hyperplasia and leiomyoma when compared with HLA.

The nature of endometrial hyperplasia (hormonal / infective) can be better assessed with HLA.

Conclusion: Both USG and MRI are useful adjuncts to HLA in studying the infertile females. USG is primarily the first line of investigation followed by MRI and HLA.

Yash Hospital & Research Center, Kanth Road, Civil Lines, Moradabad, Uttar Pradesh, India – 244001

# Role of High-Resolution Ultrasonography (HRUS) in Imaging

Dr. Rajul Rastogi

## Abstract:

Ultrasonography (USG) is a very useful imaging modality used to study different systems of the body. When it is used to study the superficial structures of the body using high-frequency transducers, then it is known as high-resolution USG

## Introduction:

High-resolution USG (HRUS) is a useful technique used to study the different parts of the body including eye, salivary glands, thyroid gland, scrotum, breast, joints, etc. Endovaginal USG (EVS) and Transrectal USG (TRUS) are other specialized types of HRUS.

## Objective and Methodology:

Pictorial presentation on the utility of HRUS

Conclusion: HRUS is very useful imaging modality to study different part / systems of the human body.

Yash Hospital & Research Center, Kanth Road, Civil Lines, Moradabad, Uttar Pradesh, India – 244001

# Total Body Irradiation –Technique, Physical and Implementation aspects

**R.Ravichandran, J.P.Binukumar, C.A.Davis, Zakia Al Rahbi, A.M.Zahid, Rajan Balakrishnan**

Total body irradiation (TBI) is used as a preparatory cyto-reductive conditioning regimen prior to bone marrow transplantation (BMT) for the management of various types of leukaemia, malignant lymphoma and aplastic anaemia.TBI is also used in the treatment of systemic malignant spread and bone pain due to metastases. Co-60 gamma rays and 6MV x-rays are commonly used for this purpose. The total body irradiations (TBI) or hemi-body irradiation is a special radiotherapeutic technique that delivers in a patient's whole body an uniform dose within +10% of the prescribed dose. For bone marrow transplants (BMT) the more stringent requisites for TBI treatments are 1) The dose delivery should include skin to 100% dose 2) The dose uniformity in the entire body should be within + 10%. 3) There is need for clinical dosimetry to document the dose delivered to various parts of the body 4) Also there should be method for shielding critical organs such as lungs, kidneys etc. to keep their absorbed doses within permissible limits.

At our centre, the technique followed are Clinac 600 CD linac with gantry at 270o, collimator at 45o provides magna field of diagonal dimension 224 cm at 4.0M FSD. An acrylic beam spoiler screen of 2M x 0.7M x 0.15M dimensions, mounted on mobile stand was fabricated locally. A dedicated treatment table operated by DC motor forms the patient support assembly to be used with the beam spoiler. A dose rate of 100 MU/min in the linac can provide 6.7cGy/min at 4.0M FSD. The prototype beam spoiler along with a self-designed additional flatness filter provided near perfect flat beam with intensities 100.4% (Maxm), 99.4% (Minm) with flatness 100.2+0.5%. Entrance doses at skin is 100% as per specifications. Clinical dosimetry with humanoid phantom measurements showed delivered doses within +5%. With these data we got approval for the radiotherapy technique protocol and taken up the procedure during 2012.

We standardized a method for lung shielding for lateral positioning of the patients. However we found that patient lying supine is comfortable and facilitates provision for eye shielding if necessary. The arms kept in the sides gives good compensates for extra transmission of lungs. For achieving homogeneity, method to use Perspex plates is acceptable. Both semi-conductors and thermoluminescent dosimetry performed for the patients showed the need for correction of skull bone thickness and also showed homogeneity in dose within 5% limits. Our experience is presented.

## Reference:

R.Ravichandran et al. Beam configuration and physical parameters of clinical high energy photon beam for total body irradiation (TBI). Physica Medica 2011,27, 163-68.

Department of Radiation Oncology, Royal Hospital, Muscat, Oman.

# Evidence based medicine in day to day radiology practice.

**Dr (Brig) Amarjit Singh, Dr Amit Kharat**

Dr D Y Patil Hospital and Medical College, Pimpri, Pune-18
Maharashtra, India

## Abstract:

## Introduction

Radiologists come across unusual cases in day to day modality practice. After encountering unusual imaging findings, radiologists need to check literature and perform the right search to achieve final diagnosis. To check literature the radiologists need to place the right questions, describe the lesion while making note of its unique character and contrast enhancement patterns if any.

Evidence based medicine provides the framework to ask the right questions and reach an adequate diagnosis on the basis of the imaging findings. The usual protocol to be followed will include; identifying the problem, searching for answer and covering the knowledge gap by searching the literature and finally assigning the level of evidence against the searched article.

Evidence based radiology is transforming radiology practice. Radiologists often look towards the internet as a basis of learning. The huge availability of the research material though well know medical search indices and journals make approaching information on the web a extremely quick and rewarding exercise.

## Conclusion

The information available is usually precise, updated and revised and helps to fill in the knowledge gap by providing quick and accurate answers. It also helps radiologists to brush their skills and is similar to having an online learning activity.

# Diagnostic Evaluation of (Pregnant) Patient With Acute Abdominal Pain. The Role of Imaging Modalities.

**Naser Malas, JBOG***

**Imad Athamneh, JBR****

## Abstract:

### Objective:

Assess the pregnant patient with other causes of pain not related to pregnancy presenting to emergency department, using different imaging modalities and to review the basic principles of radiation safety.

### Material and Methods:

During 18 months, 55 pregnant patients were referred randomly form emergency department for evaluation of abdominal Pain prospectively enrolled into our study. Pregnant with pregnancy-related causes such as premature contractions and other related causes were excluded. US evaluation for all patients including a careful search for gall bladder kidneys, pancreas and appendix related causes. Clinical, surgical, and/or imaging follow-up data were obtained in some patients.

### Result:

Out of 55 patients, 28 (50.90%) were confirmed to have an eight with gall bladder stones (14.54%) five with hydronephrosis related to pregnancy (9.08%), two of renal calculi (3.63%) one had bowel obstruction and pancereatitis (1.81%). Seven with pyelonephrisit (12.72%) , and four with pancereatitis (7.27%).

### Conclusion:

There is an increased incidence of acute abdomen during pregnancy though clinical pictures sometimes get blunted due to gravid uterus.

Early diagnosis followed by surgical intervition if needed decrease morbidity for both mother and fetus also enhances our knowledge of the principles of radiation safety .

Key word: Acute abdomen, pregnancy and ionization.

Consultant in Obstetric&Gynecology

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# SESSION 4

## IMSACON 2012

# A prospective study on evaluation of clinically negative axilla by ultrasound in patients of carcinoma breast

Prof. Navneet Kaur

## Introduction

Axillary nodal involvement is the most important prognostic correlate of survival.

ALND is considered the gold standard for lymph node status assessment. However

recent trend favors less radical surgery ( Sentinal Node Biopsy) with similar survival rates.

Objective: To examine the diagnostic accuracy of axillary sonography for detection of nodal metastasis, with an attempt to identify the best parameters for the same

## Methodology

This prospective study was conducted at UCMS & GTB hospital, Delhi .All patients with a proven carcinoma breast underwent preoperative axillary USG followed by

Modified Radical Mastectomy / Breast Conservation Surgery with axillary lymph node clearance. Histopathological correlation was done with USG finding to calculate sensitivity, specificity, Positive Predictive Value & Negative Predictive Value of axillary USG.

## Results & Discussion

A total of 34 patients were enrolled in the study. Sensitivity of clinical examination was 36.8%. The sensitivity of ultrasound was calculated to be 94.7% .Most sensitive criteria was a size more than 10mm.Round appearance of the lymph node was identified as most specific among the significantly associated criteria. Combination criteria of loss of fatty hilum and round shape of node was identified as superior to others with a sensitivity of 63.2% and specificity of 86.7%.

## Conclusion

Axillary sonography is a non invasive investigation with high rates of sensitivity and specificity. It can identify node positive patients with clinically negative axilla who require axillary clearance. Patients diagnosed with node negative breast cancer after axillary USG may be planned for SNB/ axillary sampling.

Institution: UCMS & GTB Hospital, University of Delhi, Delhi-110095

# Clinico-pathological profile of Benign breast conditions in Indian women: a prospective study based on Aberrations of normal development and involution ( ANDI) classification


## Prof. Navneet Kaur



Introduction: Benign conditions of the breast ( BBD) are very common, but a great deal of confusion exists in their nomenclature, classification, and, treatment protocols. Aberration of normal development and involution (ANDI) classification provides a comprehensive framework which correlate clinical presentation with pathogenesis. However most clinical studies have not used this classification system.

Objective: To study the spectrum of BBD in Indian patients with reference to the ANDI, and perform a clinico-pathological correlation

## Methodology

This prospective study was carried out on 262 consecutive patients, attending the Surgery department on outpatient basis for BBD

Results & Discussion: There were 199 (76%) patients with a diagnosis of benign breast disorder, and 44 ( 17%) with benign breast disease. Non ANDI and other conditions were 19 (7%). The spectrum of Benign breast disorders included fibroadenoma 77, mastalgia with nodularity 98, galactocele 7, cysts 4 and nipple discharge ( ND) 13. Benign breast diseases included giant / multiple fibroadenomas 18, incapacitating mastalgia and nodularity 13, subareolar abscess with mammary fistula 7, peridutcal mastitis with suppuration 4 and ND 2. Cytopathological correlation performed in 115 patients showed non proliferative disease in 82 , proliferative disease without atypia in 19 , proliferative disease with atypia in 3 , and miscellaneous 11.

Conclusion : ANDI is a comprehensive system of classification, which allows clinico-pathological correlation. An important finding of this study was the identification of a small group of patients in the entire spectrum of BBD, with atypical proliferative changes who are at a higher risk of developing cancer.



UCMS & GTB Hospital, University of Delhi, Delhi-110095

# SIGNIFICANCE OF LOSS OF E-CADHERIN/b-CATENIN ADHESION COMPLEX IN HPV-16 ASSOCIATED CERVICAL SQUAMOUS CELL CARCINOMA

**Rath Gayatri1, Jawanjal Poonam1, Salhan Sudha2, Dhawan Indrani3**

## Abstract:

Introduction: The E-cadherin/□-catenin system of adhesion molecules play a crucial role in the maintenance, integrity and morphology of the epithelium. Loss of these proteins lead to the activation of cell signaling pathways and tumor development.

**Objective:** To determine the clinical significance of E-Cadherin/□-catenin complex and the activation of Wnt/b-catenin pathway in HPV-16 associated Squamous Cell Carcinoma (SCCs) of cervix.

**Methodology:** The HPV-16 infection was detected in 132 SCCs (FIGO stage Ib-IV) by genotype specific multiplex PCR amplification. Thesamecohortwasthenimmunohistochemically detected for the expression of E-cadherin and b-catenin. The immunopositivity of the proteins was also correlated with known tumor variables.

**Results & Discussion:** All the 132 (100%) cases showed the presence of HPV-16 infection in their genome. On the immunohistochemical analyses, 53.03% cervical tumors showed the loss of membranous E-cadherin while, 39.39% of cases revealed its cytoplasmic expression. The 78.03% of cases was observed with the loss of membrane bound b-catenin, whereas, it's cytoplasmic stabilization and nuclear accumulation were observed in 46.21% and 56.81% of SCCs respectively. The downregulation of both membranous E-cadherin and b-catenin was significantly associated with tumor size (p=0.021; p=0.001) and stage (p=0.01; p=0.05). In addition, the nuclear b-catenin was also significantly associated with tumor size (p=0.001), tumor stage (p=0.031) and lymph node involvement (p=0.03). Membrane loss of E-cadherin showed significant positive association with membranous b-catenin (r=0.575, p=0.0001) and inverse association with cytoplasmic (r=-0.383, p=0.0001) as well as nuclear b-catenin (r=-0.529, p=0.0001) respectively. Interestingly, we also noticed the significant association between nuclear b-catenin and HPV-16 infection (p=0.05, □2 test).

Conclusion: Loss of E-Cadherin/□-catenin cell adhesion complex as well as activation of Wnt/b-catenin pathway in HPV-16 associated cervical cancer, suggest that, E-cadherin loss promotes tumorigenesis by effectively releasing membrane bound b-catenin into the cytosol, there by stimulating WNT signals, which is effectively required by HPV-16 to induce cervical malignancy.

1Department of Anatomy, 2Department of Obstetrics & Gynecology, 3Department of Histopathology, Vardhman Mahavir Medical College & Safdarjung Hospital New Delhi-110029, India.

# Title: Risk factors associated with low Bone Mineral Density among women in Ajman, UAE

**Name of Authors: Tarek Fawsy1, Jayadevan Sreedharan2, Jayakumary Muttappallymyalil2,**

**Introduction:** Osteoporosis is the thinning of bone tissue and loss of bone density over a period of time.

Objectives: To ascertain the determinants associated with (LBMD) among women above 30 years of age in Ajman, UAE.

**Methodology:** This Descriptive study was conducted over a period of two years. Factors considered in evaluating the presence of osteoporosis included age, gender, exposure to sunlight, style of clothing, physical activity, BMI, family history of osteoporosis and reproductive history. Data was analyzed using SPSS 19 version.

**Results and Discussion:** The results of DEXA scan of 374 women revealed that 61.5% were with low bone mineral density (LBMD). Of which, 5 of them were with severe osteoporosis, 79 with osteoporosis, and 140 with osteopenia. When age is considered, the risk was high in the age group 70+ (Crude OR=7.7), 60-69 years (Crude OR=4.4), 50-59 years (Crude OR=3.6) and 40-49 years (Crude OR=1.4). Participants who had less exposure to sunlight had four times higher risk of developing osteoporosis. With regard to physical activity 1.7 times more risk was noticed among those without any physical activity as compared to those with some physical activity. With regard to duration of menopause, 1.1 times higher risk was observed for unit increase of the duration of menopause. Number of pregnancy also observed as a risk factor for LBMD.

**Conclusions:** Lack of physical activity, inadequate exposure to sunlight, duration of menopause and number of pregnancy were identified as the major risk factors associated with low bone mineral density.

Name of the Institutions: [1]Department of Radiology, GMC Hospital, Ajman, UAE, [2]Research Division, Gulf Medical University, Ajman, UAE

# Does Cord Blood of Thyroid Stimulating Hormone, T3 and T4 Levels in Infants Differ in Different Modes of Deliveries?

## A Comparative study

**Naser Malas JBOG*, Ibraheem Ayad JBOG***

## Abstract

Objective: To determine whether the levels of cord blood TSH, T3 and T4 are affected by different modes of delivery.

**Methods:** This study was conducted out at Princess Haya Hospital over five months period (November 2004-March 2005). Cord blood samples for TSH, T3 and T4 were taken immediately from neonates delivered by normal vaginal delivery and Caesarean Sections either as emergency or elective. One hundred and fifty cord blood samples were obtained from three groups (group I- 50 neonates delivered by normal vaginal delivery, group II- 50 neonates delivered by emergency Caesarean Section and group III- 50 neonates delivered by elective Caesarean Section). All mothers of these neonates had no medical problems. Measurements of TSH, T3 and T4 levels were performed using IMX assay, which is a Micro particle Enzyme Immunoassay (MEIA) for TSH, T4 and T3. Simple descriptive statistics was used T-test was used to determine statistically difference between the study groups.

**Results:** The mean level of TSH in the cord blood samples taken from neonates delivered by normal vaginal delivery and emergency Caesarean Section was significantly lower than in elective Caesarean Section ($p<0.005$; 5.9±1.0 m I/ml, 5.8.±1.3 m I/ml and 7.4 ± 1.4m I/ml respectively). Regarding T3 and T4, they were significantly higher in elective Caesarean Section than in normal vaginal delivery and in emergency Caesarean Section ($p<0.05$; T4 and T3 were 4.1±1.1 n g/dl, 6.9+1.5 pg/d L 2.1±1.3 n g/dl 5.5±15 pg/dl and 5.8±1.3 n g/dl and 5.9±2.5 pg/dl, respectively).

**Conclusion:** Our results showed that TSH, T3 and T4 are lower in normal vaginal delivery and emergency Caesarean Section than in elective Caesarean Section.

Key words: Fetus, Mode of delivery, TSH, T3 and T4

# Estrogen or Raloxifene for Postmenopausal Osteoporosis Therapy?

Prof.Dr.K.Krishna Rao.MD,PhD.,

## Summary

Osteoporotic vertebral fractures cause increased morbidity and mortality in postmenopausal women. Estrogen alone (ERT, estrogen replacement therapy) or combined with progestin (HRT, hormone replacement therapy), and raloxifene, a selective estrogen receptor modulator (SERM), are therapeutic options for osteoporosis. The clinical trial evidence to support fracture efficacy of ERT/HRT and raloxifene are reviewed.

## Introduction

In postmenopausal osteoporosis, declining estrogen levels produce accelerated bone loss, which lead to decreased bone mass and microarchitectural deterioration, and an increased risk of fractures, particularly in the vertebrae and hip Between 20 to 25% of women aged 50 yr and older have one or more vertebral fractures Clinical hip or spine fractures increases the mortality risk 6.7- and 8.6-fold respectively Pre-existing vertebral fractures increases morbidity and mortality and decreases the quality of life Women with a pre-existing vertebral fracture have a 5-fold increased risk of a new vertebral fracture within the following year Therefore, the goal of osteoporosis therapy is prevention of new fractures.

## Materials and Methods

For decades, ERT and HRT have been used for management of postmenopausal symptoms. Observational studies in postmenopausal women are often cited as evidence to support the use of ERT/HRT for osteoporosis, as there are very few well-designed clinical trials which examined fracture efficacy. Results from observational studies are influenced by selection bias and adherence bias, as women who use ERT/HRT tend to have a better health profile and follow physicians' instructions compared to women who do not use these drugs

Currently, demonstration of fracture risk reduction in long-term prospective double-blind, placebo-controlled, randomized clinical trials is required for regulatory approval of newer drugs such as raloxifene. These clinical trials last for at least 3 years, involve large numbers of patients, and require confirmation of vertebral fractures with radiographs. Such clinical trials are expensive, so many smaller studies use intermediate markers, such as bone mineral density (BMD). Low BMD and the presence of existing fractures both predict increased risk of future fractures, but increase in BMD with antiresorptive agents is a poor predictor of actual fracture risk reduction with therapy This review compares the clinical trial evidence to support the use of ERT/HRT or raloxifene for reducing the risk of osteoporotic fractures.

## Results

Despite the multitude of published studies on ERT/HRT in postmenopausal women, only 15 observational studies included fracture as a study endpoint [9]. These trials suggest that postmenopausal women who used ERT/HRT have reduced fracture risk compared with case-controls. In the Study of Osteoporotic Fractures, decreased fracture risk was associated with current or prolonged use of ERT/HRT [10]. The 3-year Postmenopausal Estrogen/Progestin Interventions trial of 875 women showed significant increases in spinal (5.3%-6.8%) and hip BMD (3.4%), compared with placebo, but the incidence of fractures was not significantly different and not assessed in radiographs Clinical fractures were not significantly different between HRT and placebo in the Heart and Estrogen/Progestin Replacement Study of 2673 women at low risk for osteoporosis HRT did not significantly reduce the overall nonvertebral fracture risk In a 1-year clinical trial of 75 women with osteoporosis, the estrogen therapy

significantly decreased the risk of vertebral fractures by 61% when expressed as events per person-year This evidence, along with many studies which show increased BMD, suggest that ERT/HRT may reduce fracture risk.

Raloxifene increased spine BMD by 2.6% compared with placebo at 3 years in 1145 healthy postmenopausal women In the 3-year randomized, double-blind, placebo-controlled Multiple Outcomes of Raloxifene Evaluation (MORE) trial of 7705 postmenopausal women with osteoporosis raloxifene 60 mg/d significantly decreased the risk of painful clinical vertebral fractures by 68% in the first year In women without pre-existing vertebral fractures, raloxifene 60 mg/d decreased the risks of new vertebral fractures by 55% and of multiple ($^{3}2$) new vertebral fractures by 93%. In women with pre-existing vertebral fractures, who are at greater risk of subsequent fractures, raloxifene 60 mg/d decreased the risk of new vertebral fractures by 30% at 3 years.

Long-term compliance with osteoporosis therapy is necessary to achieve benefits on fracture prevention. ERT/HRT has beneficial effects on treating postmenopausal symptoms, such as hot flashes, but the occurrence of breast tenderness and vaginal bleeding may limit adherence. The occurrence of breast pain and vaginal bleeding with raloxifene was similar to placebo, while the incidence of hot flashes was increased . More women discontinued use of estrogen (72%) compared to raloxifene (50%) after 2 years, with a notable difference in discontinuation evident at 6 months after the initial prescription .

## Conclusions

The beneficial effects on postmenopausal symptoms are well-known but the putative fracture efficacy of ERT and HRT is suggested by several observational studies. The MORE trial demonstrated that raloxifene decreases vertebral fracture risk in postmenopausal women with osteoporosis as early as the first year. Compliance with raloxifene is superior to that for ERT/HRT.

# Breast Cancer and the Heart


## Nicole P. Sandhu, MD, PhD, FACP


While breast cancer is one of the commonest cancers among women, in many countries heart disease is a leading cause of death. Cardio-Oncology is an emerging multidisciplinary field of medicine that recognizes the impact of cancer therapeutics on cardiovascular health.

It has been recognized for many years that certain cytotoxic agents, such as anthracyclines, are potentially cardiotoxic. In more recent years, targeted monoclonal antibody therapy using trastuzumab has been recognized as being potentially cardiotoxic. Improved adjuvant therapy has led to significant improvements in long-term survival after treatment for breast cancer. However, these gains may come at the cost of impaired health and even survival due to cardiovascular disease.

The importance of identifying patients at risk of cardiotoxicity has become increasingly evident. While there is increasing evidence in the literature, the most reliable method(s) for risk assessment remains unclear. There is also increasing interest in risk modification but the most effective approach remains to be established.

A review of the literature will be provided to familiarize the conference attendees with Cardio-Oncology as it relates to breast cancer survivors.


Assistant Professor of Medicine

General Internal Medicine

Breast Diagnostic and Cancer Clinics

Mayo Clinic

# SESSION 5

## IMSACON 2012

# Tinea Cruris Sine Tinea


## Abstract

Tinea Cruris is extremely common in tropical dermatological practice. The diagnosis can be easily confirmed by KOH mount of the scales from the lesion. Very often this is not done as a routine. The altered dress behavior of the youth - jeans by both young men and women has increased the incidence several fold. Irresponsible use of tropical steroids or steroid antifungal combinations have resulted in a new clinical situation named as Tinea Incognito. In such cases demonstration of fungal filaments in scraping or PAS stained H&E sections. Culture and animal inoculation studies are undertaken only for research purposes.

In my practice in Kerala State I have come across a clinical situation characterised by intense itching without any clear margins of the groins which is negative for fungal filaments and scrapings as well as in histopathological specimens stained by PAS. It shows only a psoriasiform tissue reaction without any evidence of psoriasis anywhere else in the body. It responds to topical steroid and encouraged by the temporary relief patients continue to use it off and on, resulting in steroid induced striae.

This condition is best treated with Castellani's paint and will not recur as long as the patient does not apply any soap in the affected area. Several attempts to corroborate reactions to ingredients in the toilet soaps failed to yield any results. Absolute abstinence to application of soaps to the affected areas appears to be curative and prevents a relapse. This needs further study for proper evaluation.



Dr. P. Sugathan MD(AIIMS), FRCP(Glasg.) FIMSA

# LEPTOSPIROSIS-A CROSS SECTIONAL STUDY

**BY Dr.V.Padma,Dr.N.N.Anand, Dr.S.M.Rajendran**

## INTRODUCTION:

Leptospirosis is caused by infection with bacteria of genus Leptospira and affects humans as well as other mammmals,birds,amphibians and reptiles.The infection is commonly transmitted to humans by allowing water to be contaminated with animal urine which comes in contact with cuts in skin,eyes ,mucous membranes.

Dr. V. Padma,Dr.N.N.Anand-Associate professor of medicine

Dr.S.M.Rajendran-Professor of medicine.

SreeBalaji Medical College,Chrompet,Chennai,TamilNadu,India.

## AIM:

This study is a cross sectional study of 100 patients infected with leptospirosis. The aim of the study is to analyse the clinical features,find out the different serotypes causing infection,complications seen in different types.

## MATERIAL AND METHODS:

100 patients with fever with leptospirosis positive MAT tests over a period of one year were enrolled in this study.A detail history was taken and lab investigations were done.Patients with other infections were excluded from the study and the results were analysed.

## RESULTS:

Among the 100 patients there were 60 female and 40 male patients.The mean age of females infected was 38.1333 and the mean age of males infected was 35.2750.Of the different serovars of leptospirosis,l.copenhageni infected 43% of patients,l.louisiana infected 27%,l. valbuzzi infected 18%,l.bratislava infected 9%,l. icterohemorrhagica infected 2%and l.bataviae infected 1% of patients with leptospirosis. Dark field microscopy also showed 23 patients with l.copenhageni,13 patients with l.louisana,9 patients with l. valbuzzi,4 with l.bratislava,2 with l. icterohemorrhagicaand 1 with l.bataviae to be positive.Patients with l.valbuzzi had more thrombocytopenia .Patients with l.copenhageni and l.louisiana had raised liver transaminases and had nausea and vomiting as their presentation. The most serious of all the serovars prevalent l.icterohemorrhagicahad the worst prognosis.Of the 2 cases one patient had DIC with multiorgan dysfunction and died.The other patient had renal failure which after 5 dialysis rrecovered completely.

## DISCUSSION:

Leptospirosis is a biphasic disease,and begins with a flu like symptoms.After the first phase resolves the second phase begins with liver disease,renal failure and meningitis. Vasculitis may occur causing edema and potentially DIC, myocarditis, meningitis and uveitis.Complications include respiratory distress,acute renal failure and liver failure.Early diagnosis and treatment would prevent complications and death.Thoughl. icterohemorrhagica is not very common it causes serious life threatening complications which can be prevented by early diagnosis and effective treatment.

# SESSION 6

## IMSACON 2012

# Student-Led Seminars as a teaching-learning method- evidence for a modified format

Kadayam G Gomathi[1], Ishtiyaq AhmedShaafie[1] and Manda Venkatramana[2]

Student-Led Seminars as a teaching-learning method- evidence for a modified format

Student-led seminars (SLS) have long been used as a teaching-learning method for undergraduate MBBS students in the Gulf Medical University (GMU). Student feedback has, however, consistently ranked SLS as a poor teaching-learning method.

**Objectives:** To (i) modify SLS to a new, more interactive and student-centered format that would align better with the learning outcomes and (ii) assess student perceptions regarding the SLS sessions.

**Methodology:** SLS was redesigned, into a presentation followed by quiz format, to make it more interactive and student centered. Students were seated in teams during the whole session. Students were assessed on their own seminar presentation as well as team performances in the quizzes after the seminars. The new format was implemented midway in year1. Student perceptions regarding SLS sessions in the new and the old formats were surveyed using an anonymous questionnaire and scored using a likert-like scale. Statistical significance ($p < 0.05$) was tested using the Wilcoxon signed ranked test and the Mann-Whitney U test using the PASW19 software.

**Results:** Significantly higher number of students in the new format of SLS reported 'Seminars encourage me for self learning', 'I gained new knowledge in the seminars', 'I enjoyed learning through seminars', 'I understood the topic when presented by my colleagues', 'I learnt new things from my colleagues in the seminar group' and 'I enjoyed working with my colleagues for my seminar'. The new format was significantly more interesting, interactive, fun and made them feel more like a team. High number of students reporting 'improvement in communication skills', 'learnt to make a formal scientific presentation' and 'gained self confidence after presenting the seminar'.

Conclusions: Since the main use of SLS as a teaching-learning method in GMU is to inculcate self-learning, peer-learning and communication skills, the new format is significantly better at achieving the outcomes.

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# Clinical-Epidemiological Profile of Laboratory Confirmed Cases of Influenza A H1N1, at Government Medical College and Hospital (GMCH), Chandigarh, India


## Siddharth V.1, Goyal V.2, Koushal V. K.3, Gupta S. K.4

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Dr. Vijaydeep Siddharth



## ABSTRACT:

### Introduction:

In April 2009, a new strain of influenza virus A H1N1, commonly referred to as "swine flu" began to spread in several countries around the world. India confirmed its first case on May 16th 2009, A man travelling from New York via Dubai and Delhi tested positive for the H1N1 influenza virus in Hyderabad.

### Objective:

To study the clinical and epidemiological profile of Laboratory confirmed cases of Influenza A H1N1 at GMCH, Chandigarh.

### Methodology:

A retrospective study of epidemiological characteristics were descriptively analysed using data of influenza AH1N1 screening center and influenza A H1N1 isolation ward from May 2009 to April 2010 at Government Medical College and Hospital, Chandigarh.

### Results & Discussions:

In, GMCH a total of 365 patients were sampled, out of which 29.58% (108) were found to be positive and there were 54 admission in Influenza A H1N1 isolation ward out which 54.9% (28) succumbed to it. Influenza A H1N1 cases gradually increased starting from the month of July to maximum in month of December. Maximum cases were detected in patients less than 40 years of age which accounted for 81.4% (44 cases) cases. Most common symptom was fever (87.6%), cough (49.77%), sore throat (27%) and breathlessness (23.9%). 28 (77.7%) deaths were reported in Influenza A H1N1 patients. 46% (12) deaths occurred within 48 hours of admission, of which 7 deaths occurred within 24 hours. Single death was reported in pregnant female.

### Conclusion:

On the basis of study finding it can be safely hypothesized that prevalence of influenza A H1N1 is high in younger population and fever, cough & sore throat are the most common symptoms with which the patients usually present.



ALL INDIA INSTITUTE OF MEDICAL SCIENCES

Department of Hospital Administration

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# Values for Health Care Professionals


## Dr. S.Viswanathan

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## Introduction

In the modern era of medicine, with all the developments in bioinfomatics and technical aspect going ahead and where all health professionals forget their inner values of well being and most of them are very stressed out.

## Objective

• To identify and apply core values in health care

• Bring new vitality to our practice by reflecting on these values

• Assist others to rediscover their own personal values

## Theme of the presentation

• Holistic Approach

• Empowerment through encouragement

• Positivity

• Growth Mindset

• Knowing Power Within

## Methodology

• The Lecture and Practical modules which is experiencial developed with 5 core values, 5 principlesto care ourself, 8 keys of excellence and 7 tools of life. Facillitative methodology is used for deeper understanding.

• 5 Core values : Peace, Positivity, Co-operation, Valuing Yourself and Compassion

• 5 Principles : Proper Exercise, Proper Breathing, Proper Diet, Postitive Attitude

and Relaxation

• 7 Tools : Going Within, Imagination, Play Cool & Efficient, Innovative, Active

Listening, Growth Mindset & Appreciative Inquiry.

• 8 Keys of Excellence : Practical Skill for bliss and success

Purpose of the Module

• Physician Heal Thyself - "Self Care"

• Learning from Experience - "Inner" Experience

• Relevance to Work - "Reflection"

## Conclusion

Values in health care give participants the opportunity of exploring in depth some values which are particular importance in health care practice. The main premise of values in health care is that in developing a conscious values based approach and rediscover their own peacefulness, think more positively and act with compassion and co operation. While putting their own self care at the centre of their efforts


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# EVIDENCE BASED PROTECTION IN MALPRACTICE LITIGATION

**Dr. B. G. Ponnappa**
DNB, FRCS (G), LLM (Crimes and Torts)

## Abstract :

The Law plays an important role in how the Doctor- Patient relationship is conducted. This is exemplified when a doctor faces a malpractice suit / consumer protection case and asked to pay huge compensation. The decision whether there is negligence or not is based on the evidence the parties lead in the case. In this presentation I am explaining about, what is evidence in legal terms, the types of evidences and how we should create and use the evidence in a malpractice case and legal ways by which a doctor can defend in the event of litigation. The judicial principles and Leading cases in this area are discussed.

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# A needs assessment for faculty development: a survey among clinical teachers in UAE

Premadasa G1, Sreedharan J2

## Abstract

### Introduction

Identifying the felt needs of the teaching faculty will greatly facilitate the planning of faculty development programs, and the programs offered by health professions training institutions need to meet the specific needs of their clinical faculty.

### Objective

The study aims to ascertain the opinions of clinical faculty as regards:

i. current knowledge in the different topics in medical education, and

ii. importance of further learning in these areas for improving teaching performance.

### Methodology

Clinical teachers at three hospitals were surveyed using a self-administered questionnaire that had 24 statements grouped under course planning, instructional methods, student assessment, and the design and use of learning aids. 45 completedquestionnaires out of the 99 distributed had been returned (response rate of 45%). The responses were tallied and analyzed as percentages.

### Results& Discussion

A fifth of the respondents had over 20 years of teaching experience, while another fifth had at least 10 years of experience. Clinical teaching, tutorials, teaching in large classes, student projects and laboratory teaching were mentioned as the instructional activities that the teachers were involved in at present.

Areas in which the faculty wished to enhance their competencies had been cited as IT in education, principles of learning, teaching practical skills, bedside and clinical teaching, planning audio-visual materials, presentation techniques, and teaching Medical Officers.

### Conclusions

Future faculty development programs need to emphasize topic areas such as clinical and bedside teaching, teaching practical skills and designing and presenting illustrated materials. Programs in these fields are bound to be well received and be beneficial.

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# SESSION 7

## IMSACON 2012

# Decreased susceptibility to antimicrobials among Shigella flexnerii isolates in Manipal, South India- A 5 year hospital based study

Mamatha Ballal, Rituparna Chakraborthy

## Abstract

Introduction: Shigellosis is responsible for high degree of morbidity and mortality in high risk populations .Severe forms may require antimicrobial treatment. However , emergence of multidrug resistance has made the selection of antimicrobials complicated. Resistance to fluoroquinolones has been in rise especially in Asia.
Objective: Present study was undertaken to determine any change in isolation and serotype switching of Shigella and monitor their antimicrobial resistance over a 5 year period( 2006-2011) .and compare with our previous study .( 2001-2006).

## Methodology:

A total of 2100 faecal samples from patients with diarrhea were processed ( 2006-2011). Isolates identified by standard microbiological techniques as Shigella spp .Disk diffusion method for antimicrobial susceptibility performed using CLSI guidelines.

## Results and discussion:

Of the 2100 samples , 77(3.66%) were Shigella spp. Further predominance of Shigella flexnerii was noted over the other serogroups . 3 out of 77 Shigella were S sonnei and one S dysentriae1. 100% resistance was noted against Nalidixic acid and significant increase in resistance seen with Ampicillin(100%),,Co-trimoxazole( 89.6%), Tetracycline( 84.4%), Ciprofloxacin( 87%)and Norfloxacin ( 83.1%). Decrease in resistance noted against aminoglycosides. However Shigellae were susceptible to third generation cephalosporins.

Isolation of Shigella species in our study was less (3.66%) in comparision to previous study ( 2001-2006) (5.7%) . Shigella flexneri was the predominant serogroup (94.8%) and Shigella flexneri 2a the frequently isolated in our study .This was in synchrony with our previous study and studies elsewhere. Two isolates were resistant to cephalosporins and this is an alarm ,signaling the emergence of cephalosporin resistance in this region of the country.

## Conclusion

Antibiotic treatment is recommended for shigellosis as it reduces the duration,severity ,excretion of organisms and prevents lethal complications. Increase in fluoroquinolone resistance leaves us only with third generation cephalosporins . But emerging resistance to cephalosporins as evidenced from our study is a serious cause of concern for the medical fraternity.

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# Evidence based Lab practices and paradigm of antimicrobial resistance

**Neelam Taneja,**

Antimicrobial agents are one of the greatest innovations of the 20th century , which have saved countless lives and caused tremendous reduction in morbidity associated with infectious diseases. However , the widespread use and misuse of these invaluable agents has led to emergence of many potentially untreatable multi drug resistant superbugs which threaten to take the world back to the preantibiotic era of 1930s. Diagnostic microbiology services have come a long way since the time of Robert Koch and Luis Pasteur , but still are heavily dependent on conventional culture and identification systems which may take a minimum of 2 days to give antimicrobial susceptibility and identification to the clinician to make some sense of the report and institute the right antimicrobial treatment . Providing evidence for infection is currently the "Achilles heel "of global efforts to combat infectious diseases and the menace of antimicrobial resistance. Role of evidence based treatment is well established , however role of evidence based diagnosis is less defined. Evidence based lab medicine in microbiology service aims at the conscientious, explicit and judicious use of current best evidence in making the decisions about the individualized patient care , here translated as the proper usage of antibiotics for the right indication, in the right dosage, for the right duration and descalation to narrow spectrum antibiotic. At our tertiary care hospital , in spite of having the best microbiology services , in a recent survey , out of 957 patients , microbiological confirmation was sought only for 73 patients. Over one third of the patients had no clinical evidence of infection. This overuse and underutilization of the lab services has many reasons : lack of availability of rapid tests , lack of virological diagnosis , difficulty to differentiate colonization from infection , tendency to treat syndromically and fear of bacteriological infection in the mind set of the clinician, cost of the test ,the inherent delay in reports , and lack of awareness of the utility of the tests offered to name some. While the developed nations may struggle with too much testing , situation at district health level is even worse with no microbiological setup available at many places across India and other developing nations .

Many illnesses like respiratory tract infections and gastroenteritis have frequent viral etiology but are wrongly treated with antibiotics. Rapid tests based on technological advances in metabolimics , proteomics and genomics are the need of hour. Some of the examples are matrix assisted laser desorption ionization- time of flight Mass spectroscopy (MALDI-TOF ) for rapid identification of bacteria on the basis of mass and electric charge on surface proteins, real time PCR platforms , chip technology and biofluidics .Cost of new technology may be prohibitive. Under strong economic and technological pressures, it is essential for administrators and all decision makers to understand the full spectrum of activities and benefits laboratory medicine can provide.

The true impact of lab medicine can only be achieved by adding value to lab tests, not in terms of only monetary issues but also by their effectiveness in management of patients and related outcomes like the emergence of antimicrobial resistance.

Neelam Taneja, Additional Professor , Medical Microbiology , Postgraduate Institute of Medical Education and Research, Chandigarh, India, e mail ; drneelampgi@yahoo.com

# Detection of Staphylococcal Enterotoxins in Synovial fluid of Seronegative Rheumatoid Arthritis pateints

**Ramezan Ali Ataee, Ph.D.1, Gholam Hossein Alishiri,* M.D.2**

Department of Rheumatology, Faculty of Medicine, Baqiyatallah University of Medical Sciences, Tehran, IR Iran.

## Abstract

Interoduction and Objective: Experimental evidence suggests that staphylococcal superantigenic enterotoxins are involved in arthritis. The aim of this study was to detect staphylococcal enterotoxins in synovial fluid of seronegative rheumatoid arthritis patients.

**Methodology:** In this study, 50 synovial fluid samples from patients with seronegative rheumatoid arthritis were analysed. A commercial sandwich-enzyme immunoassay for the detection of Staphylococcus aureus enterotoxins SET A, B, C, D and E were used. The samples were separately processed by Amicon Ultrafiltration system. Electophoretic analysis was performed. The results were confirmed by western blotting test.

**Results and Conclusion:** The results indicated that, more than 60 percent of the synovial fluid smaples of the patients with seronegative rheumatoid arthritis have at least one of the staphylococcal enterotoxins. Based on our study, the most abundant enterotoxin seen in the synovial fluid of patients with rheumatoid arthritis were enterotoxins A, C, E, B and D respectively in order of presence. Meanwhile, bacteriological assayed was negative for Staphylococcus aureus isolation.

**Conclusion:** This finding lead us to consider for provide a new test method to diagnosis of rheumatoid arthritis and was designed based on the specific treatment of disease. In addition, these findings suggest that, detection of Staphylococcal enterotoxins in synovial fluid as a new biomarker can help identify causes and select specific traetment options.

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# Clinical-Epidemiological Profile of Laboratory Confirmed Cases of Influenza A H1N1, at Government Medical College and Hospital (GMCH), Chandigarh, India


## Siddharth V.1, Goyal V.2, Koushal V. K.3, Gupta S. K.4

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NAME OF THE AUTHOR: **Dr. Vijaydeep Siddharth**



## ABSTRACT:

### Introduction:

In April 2009, a new strain of influenza virus A H1N1, commonly referred to as "swine flu" began to spread in several countries around the world. India confirmed its first case on May 16th 2009, A man travelling from New York via Dubai and Delhi tested positive for the H1N1 influenza virus in Hyderabad.

### Objective:

To study the clinical and epidemiological profile of Laboratory confirmed cases of Influenza A H1N1 at GMCH, Chandigarh.

### Methodology:

A retrospective study of epidemiological characteristics were descriptively analysed using data of influenza AH1N1 screening center and influenza A H1N1 isolation ward from May 2009 to April 2010 at Government Medical College and Hospital, Chandigarh.

### Results & Discussions:

In, GMCH a total of 365 patients were sampled, out of which 29.58% (108) were found to be positive and there were 54 admission in Influenza A H1N1 isolation ward out which 54.9% (28) succumbed to it. Influenza A H1N1 cases gradually increased starting from the month of July to maximum in month of December. Maximum cases were detected in patients less than 40 years of age which accounted for 81.4% (44 cases) cases. Most common symptom was fever (87.6%), cough (49.77%), sore throat (27%) and breathlessness (23.9%). 28 (77.7%) deaths were reported in Influenza A H1N1 patients. 46% (12) deaths occurred within 48 hours of admission, of which 7 deaths occurred within 24 hours. Single death was reported in pregnant female.

### Conclusion:

On the basis of study finding it can be safely hypothesized that prevalence of influenza A H1N1 is high in younger population and fever, cough & sore throat are the most common symptoms with which the patients usually present.



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# Tuberculous Pleural Effusion: A study on 250 patients

Type: Original Research


## Dr. Pankaj Bansal, MD



## Abstract

Background:The average prevalence of all forms of tuberculosis in India is estimated to be 5.05 per thousand, prevalence of smear-positive cases 2.27 per thousand and average annual incidence of smear-positive cases at 84 per 1,00,000 annually. Tuberculosis is a common cause of pleural effusion in India. Recent studies of populations with a high prevalence of tuberculosis report that tuberculous pleural effusion occurs in approximately 30% of patients with tuberculosis.

Objective: To report our experience of 250 patients with tuberculous pleural effusion.

Method: 250 patients suffering from tuberculous pleural effusion were included in the study. Thorough history taking and physical examinations, radiological findings, hematological and serum biochemical profiles were recorded. Pleural aspiration and biopsy were also performed. At least two pieces of pleural tissue were taken and one piece of each sample of pleural tissue was cultured for mycobacteria and the rest was sent for histological examination. Macroscopic findings, cytological, microbiological and biochemical analysis of pleural fluid were analyzed.

**Results:** Main symptoms noted were fever, cough and breathlessness, followed by chest pain. Blood count mainly revealed lymphocytosis. ADA and LDH were raised in almost all cases. 2 (0.8 %) patients had bilateral pleural effusion and 43 (17.2 %) patients had associated parenchymal lesion. All patients responded well to anti-tubercular treatment alongwith steroid and thoracentesis.

**Conclusion:** The definitive diagnosis of TB pleural effusions depends on the demonstration of M tuberculosis in sputum, pleural fluid, or pleural biopsy specimens. Supportive evidence includes demonstration of classical

TB granulomas in the pleura and elevated adenosine deaminase (ADA), lactate dehydrogenase (LDH) and alkaline phosphates levels in pleural fluid. Pleural fluid analysis can be an important tool in patients of pleural effusion.



Key Words: Tuberculosis, Tuberculous pleural effusion, Pleural biopsy


## Introduction

India is in a unique position with respect to the global tuberculosis epidemic. Tuberculosis (TB) remains the leading infectious cause of death in India, killing close to 500,000 people a year. India has far more cases of tuberculosis than any other country in the world - about 2 million new cases each year — and accounts for nearly one third of prevalent cases globally. A director-general of the World Health Organization once remarked, "The whole world benefits from the fruits of Indian [tuberculosis] research — the whole world, except India."1 The disease is a major barrier to social and economic development. An estimated 100 million workdays are lost due to illness.2 Tuberculous pleural effusion is usually a secondary immunologic response to the rupture of bacilli tubercles. It is difficult to diagnose, since only scanty bacilli are contained in the pleural effusion. Recent studies of populations with a high prevalence of tuberculosis report that tuberculous pleural effusion (TPE) occurs in approximately 30% of patients with tuberculosis.3 TB pleural effusion is being increasingly recognized, even in developed nations, as the incidence of EPTB has more than doubled following the HIV pandemic.4 In this article, we report our experience of 250 patients with tuberculous pleural effusion.

## Patients and Method

Patients of Tuberculous pleural effusion (TPE) who reported to Sharda Hospital, School of Medical Sciences & Research, Sharda University, Greater Noida from Jan 2007 to August 2010 were taken into consideration. A sample size of 250 was obtained. Thorough history taking and physical examinations, radiological findings, hematological and serum biochemical profiles were recorded for all the patients. Pleural aspiration and biopsy were also performed. At least two pieces of pleural tissue were taken and one piece

of each sample of pleural tissue was cultured for mycobacteria and the rest was sent for histological examination. Macroscopic findings, cytological, microbiological and biochemical analysis of pleural fluid were analyzed.

## Results

In our study on 250 TPE patients, max number were in the age group of 20-40 and males were more common than females.(Table 1)

The common symptoms noted were fever (85 %0, cough (82 %), chest pain (79 %), loss of appetite (70 %), weight loss (68 %) and sputum (40%). (Table 2)

Among the respiratory signs, dullness and absence or decreased breath sounds were mainly noted (85.2 % cases). Crepitations were present in 17.2 % cases.

On radiological examination, 58.4 % cases showed involvement of right side of chest, 40.8 % cases showed involvement of left side of chest, and both right & left sides were involved in 0.8 % cases. (Table 3)

Pleural fluid was straw-coloured in all except 20 cases, among which, turbidity was seen in 17 cases and 3 cases were blood-strained. Hematological examination of pleural fluid showed mainly lymphocytes (73.6 % cases) and neutrophils (21.1 % cases). (Table 4)

ZN stain for AFB of pleural fluid was positive for 09 % cases. Pleural fluid culture was positive for 35 % cases. Biopsy of pleural tissue showed caseating granuloma formation in 80% cases. (Table 5)

**Table 1: Age distribution of TPE patients**

| Age (years) | Male | Female | Total |
|---|---|---|---|
| 12-20 | 4 | 2 | 6 |
| 21-30 | 72 | 33 | 105 |
| 31-40 | 65 | 34 | 99 |
| 41 & above | 26 | 14 | 40 |
| Total | 167(66.8 %) | 83 (33.2 %) | 250 |

**Table 2: Symptoms in TPE patients**

| Symptoms | Percentage of patients |
|---|---|
| Fever | 85 % |
| Cough | 82 % |
| Chest pain | 79 % |
| Loss of appetite | 70 % |
| Weight loss | 68 % |
| Sputum | 40 % |

**Table 3: Chest involvement on radiological examination in TPE patients**

| Side of chest | No. of patients | Percentage of patients |
|---|---|---|
| Right side | 146 | 58.4 % |
| Left side | 102 | 40.8 % |
| Both sides | 2 | 0.8 % |

**Table 4: Hematological examination of pleural fluid in TPE patients**

| Type of cells | Percentage of total counts |
|---|---|
| Lymphocytes | 73.6 % |
| Neutrophils | 21.1 % |
| Other cells | 1.3 % |

**Table 5: Microbacterial investigations in TPE patients**

| Procedure | Percentage of patients |
|---|---|
| ZN stain for AFB of pleural fluid | 09 % |
| Pleural fluid culture | 35% |
| Biopsy showing granuloma formation | 80 % |

**Table 6: Biochemical analysis of pleural fluid in TPE patients**

| Biochemical investigation | Number of patients | Percentage of patients |
|---|---|---|
| Protein | 240 | 96.0 % |
| Glucose | 228 | 91.2 % |
| Adenosinedeaminase (ADA) | 247 | 98.8 % |
| Lactate dehydrogenase (LDH) | 245 | 98.0 % |
| Alkaline phosphatase | 225 | 90.0 % |

Biochemical analysis of pleural fluid showed raised protein levels in 96 % cases, raised glucose levels in 91.2 % cases, raised adenosine deaminase (ADA) levels in 98.8 % cases, raised LDH levels in 98.0 % cases and raised alkaline phosphatase levels in 90 % cases. (Table 6)

## Discussion

Tuberculous pleural effusion (TPE) is an acute granulomatous pleurisy caused by recent infection by the mycobacterium. Patients with TPE invariably have a small subpleural nidus of tuberculosis showing fibrous and granulomatous inflammation and clear signs of leakage into the pleural space. Although TPE can resolve spontaneously within a few weeks or months, about one third of persons with untreated TPE subsequently develop a more serious form of tuberculosis.5 Pleural effusion in tuberculosis is due to actual infection of the pleura by tubercle bacilli, although tuberculin hypersensitivity has a part to play in potentiating the reaction. Although tuberculous pleural effusions are quite common in our country, almost all such cases present initially with features of effusion.[6]

Tuberculous pleural effusions are not always easy to diagnose because the standard criterion (the presence of a lymphocyte- rich exudate associated with caseous necrotic granulomas in pleural biopsy tissue samples, positive Ziehl-Neelsen stains or Lowenstein cultures of effusion or tissue samples, and cutaneous sensitivity to purified tuberculin protein antigen derivative [PPD]) is not invariably satisfied.[5]

Most TB pleural effusions manifest as an acute illness, with approximately one third of patients being symptomatic for < 1 week and two thirds for < 1 month. The most common presenting symptoms are pleuritic chest pain (75%) and nonproductive cough (70%). TB pleural effusion was considered a disease of the young, with a mean age of 28 years, compared to 54 years for parenchymal tuberculosis. However, Epstein and colleagues demonstrated a rise in the median age (56 years) at presentation of TB pleural effusions with 19% of patients having reactivation disease.4 In our study on 250 TPE patients, maximum number of cases were in the age group of

20-40 and males were more commonly affected than females. The common symptoms noted were fever (85 %0, cough (82 %), chest pain (79 %), loss of appetite (70 %), weight loss (68 %) and sputum (40%). Among the respiratory signs, dullness and absence or decreased breath sounds were mainly noted (85.2 % cases). Crepitations were present in 17.2 % cases.

Tuberculous pleural effusion is thought to result from rupture of a subpleural pulmonary tuberculous focus into the pleural space, which allows tuberculoproteins to enter the pleural space and generate the hypersensitive reaction responsible for most of the clinical manifestations. Supporting evidence comes from the surgical findings of Stead et al, who reported that 12 of 15 patients with tuberculous pleuritis had concomitant parenchymal disease that was not obvious radiographically.7 In our study, radiological examination showed 58.4 % cases with right sided chest involvement, 40.8 % cases showed involvement of left side of chest, and both right & left sides were involved in 0.8 % cases. Hulnick et al also reported that CT showed parenchymal cavities in eight and infiltrates in another six of 14 patients with no obvious parenchymal abnormality on standard chest radiographs. Given this fact, concomitant subpleural pulmonary tuberculous lesions, if not radiographically evident, are not unexpected in patients with tuberculous pleural effusion. If one goes a step further, one can reasonably expect that these radiographically invisible lesions subsequently undergo transient worsening and become radiographically evident, despite

antituberculous medication, as in other reported cases with paradoxical response.[7]
Tuberculous pleural effusions usually occur after a so called latent period of 3-6 months following the initial infection as a result of rupture of the Ghon focus into the pleural cavity. The aetiology of such "primary" tuberculous effusions lie in a delayed hypersensitivity reaction to a few bacilli entering the pleural space; an immunological phenomenon rather than one of direct infection of the pleural space. This would explain a period of latency from the time of initial infection, the low yield of pleural fluid acid fast smear analysis in this condition and often the lack of positive pleural fluid cultures. However, recent studies appear to suggest that "reactivation" disease is becoming a more frequent presentation of tuberculous pleurisy. A study of tuberculous pleural effusions in Scotland reported that "re-activation" disease was in fact more commonly seen than primary disease. Here, larger numbers of acid-fast bacilli are secreted into the pleural cavity compared to primary tuberculous effusions. [8]
Usually tuberculous pleural effusions develop :-

(a) By rupture of a peripheral focus or caseous lymph node into the pleura or the bacilli may reach the pleura via the lymphohaematogenous route.

(b) By rupture of a tuberculous cavity into the pleura.
(c) By rupture of caseous mediastinal node into pleural space or from a caries rib which can rarely cause pleural effusion.[6]

Rupture of a subpleural caseous focus in the lung into the pleural space is considered the initial event in the pathogenesis of primary TB pleural effusions. The entry of mycobacterial antigens into the pleural space is followed by an interaction with predominantly CD4 + T-lymphocytes resulting in a delayed hypersensitivity reaction. The accumulation of fluid in pleural cavity results predominantly from increased capillary permeability and secondarily from impairment of lymphatic clearance of proteins and fluid from the pleural space because of occlusion of pleural stomata.[4]

A TB pleural effusion is typically clear and straw colored; however, it can be turbid or serosanguinous.4 In our study, pleural fluid was straw-coloured in all except 20 cases, among which, turbidity was seen in 17 cases and 3 cases were blood-strained.

Sputum, pleural fluid, and pleural biopsy material have all been cultured in patients suspected of having tuberculous pleural effusion with varying success.9 Direct examination of pleural flu-

id by Zeihl- Neelsen staining requires bacillary densities of 10,000/mL37 and, therefore, detects acid-fast bacilli (AFB) in less than 10% of cases. Culture requires a minimum of 10 to 100 viable bacilli and, therefore, is more sensitive with a yield ranging from 12 to 70%.4 In our study, ZN stain for AFB of pleural fluid was positive for 9 % cases and pleural fluid culture was positive for 35 % cases.

Since its first description in 1955, biopsy of parietal pleura has become the most sensitive diagnostic test for TB pleural effusions. Histologic examination of tissue from the pleural biopsy may demonstrate granulomatous inflammation, caseation necrosis, or AFB. In patients with TB pleural effusions, pleural biopsy reveals granulomas in 50 to 97% of patients.4 In our study, biopsy of pleural tissue showed caseating granuloma formation in 80% cases.

Jadhav AA found the mean pleural alkaline phosphatase and pleural fluid/serum alkaline phosphatase ratio was significantly higher in tuberculous compared to nontuberculous pleural effusion. ($P < 0.0001$). He concluded that alkaline phosphatase activity remains a useful test in differentiation of tuberculous from nontuberculous pleural effusion.10 We found increased level of pleural alkaline phosphatase in 90.0% TPE patients. Recent studies have investigated the usefulness of measuring adenosine deaminase (ADA) as tools for early diagnosis.3 We found raised ADA levels in 98.8 % cases.

Although TPE occurs in about 10% of untreated individuals who are tested positive by the tuberculin test, it may also develop as a complication of primary pulmonary tuberculosis.3 Actually, tuberculosis is the major cause of pleural effusions in areas of high tuberculosis prevalence, and TPE usually manifests as lymphocytic exudative pleural effusion.11 In our study, hematological examination of pleural fluid showed mainly lymphocytes (73.6 % cases) and neutrophils (21.1 % cases).

## Conclusion

The clinical features of primary tuberculous effusions include fever, cough, chest pain, loss of appetite, weight loss and sputum, though cases may also be oligo or asymptomatic. In a substantial number of cases, the presentation may be acute with the aforementioned symptoms presenting over short duration. The definitive diagnosis of TB pleural effusions depends on the demonstration of M tuberculosis in sputum, pleural fluid, or pleural biopsy specimens. Supportive evidence includes demonstration of classical TB granulomas in the pleura and elevated adenosine deaminase (ADA), lactate dehydrogenase (LDH) and alkaline phosphates levels in pleural fluid.

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# SESSION 8

## IMSACON 2012

# HAEMATOLOGICAL CHANGES IN CHRONIC RENAL FAILURE

**Suresh M, Chandrasekhar M**
Department of Physiology,

## ABSTRACT

### Introduction

Kidney diseases is ranked – 3rd amongst life threatening disease in India, after cancer and heart disease. About 200,000 persons go into terminal kidney failure every year. Erythropoietin is the primary regulator of red blood cell formation in the bone marrow, which are mostly produced by the renal epithelial cells. During renal failure this erythropoietin level is decreased, which results in a fall in hematological values.

### Objective

This study was carried out to observe the hematological changes like RBC count, Hb concentration, hematocrit, platelet count and TLC in patients suffering from chronic renal failure.

### Methodology

50 Chronic renal failure patients blood samples were compared with 50 age and sex matched controls with inclusion criteria of age between 30 to 75 years, serum creatinine > 1.5 mg/dl, and exclusion criteria of serum creatinine < 1.5 mg/dl and patients suffering from muscular atrophy. Haematological parameters were estimated by using Beckman coulter automatic analyzer, and the serum creatinine was estimated by fully automated random access chemistry analyzer.

### Results

Data were analyzed statistically by T – test and Pearson's correlation coefficient test. In chronic renal failure patients, RBC count HB concentration, hematocrit and platelet count where significantly reduced, whereas TLC was reduced but not statistically significant and serum creatinine shows negative correlation with all hematological parameters.

### Conclusion:

Chronic renal failure patients have lower haematological indices, due to impaired production of erythropoietin, and other factors like increase haemolysis, suppression of bone marrow erythropoiesis, hematuria and gastrointestinal blood loss. And the degree of changes depends on the severity of renal failure.

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# Feasibility Assessment Of Thrombolytic Therapy In Acute Stroke

## Background

Intravenous (IV) recombinant tissue plasminogen activator (rt-PA) is the only FDA approved therapy for treatment of acute ischemic stroke, though only a small proportion of patients with acute stroke get benefit of thrombolytic therapy.

## Methods

We conducted a study to assess the feasibility of using thrombolytic therapy in patients presenting to casualty with acute stroke in Dayanand Medical College and Hospital, Ludhiana.

## Results

A total of 265 patients of acute stroke were studied, out of which 81 (30.57%) patients had hemorrhagic stroke, 160 (60.37%) had ischemic stroke, in 12 (4.53%) patients imaging revealed ischemic with hemorrhagic transformation and in 12 (4.53%) patients, it was normal. There were 183 (69%) males and 82 (31%) females with a mean age of 58.57 + 13.47 years. Nearly three-fourths (75.85%) of patients in the present study were hypertensive.The average 'door to doctor time' was 4 hours and 54 minutes. 94.72% patients were aware about atleast one symptom of stroke. 14 respondents (5.28%) were aware about the availability of rtPA as a therapy of acute ischaemic stroke. The various factors leading to delay in presentation were the inaccessibility of a well equipped hospital, cultural beliefs like oil massage, giving opium, belief in witchcraft and faith healing and use of alternate medicine like homeopathic and ayurvedic treatments.

## Discussion

This hospital-based survey reveals that considerable education is needed to increase public awareness regarding thrombolytic therapy in view of the anticipated cost savings and health benefits.

# microRNAs in Rheumatic Diseases

**H S Luthra, MD**

microRNAs (miRNA) are small non coding sequences – approximately 21-31 nucleotides long, that have been found to play a very powerful role in control of the immune response. By binding to complementary sequences in the 3' region of the messenger RNA, can block further translation or can lead to rapid destruction. The miRNA has been found to control or accelerate the immune response and is felt to play a major role in autoimmunity.

Several microRNA's have been found to be up regulated or down regulated in rheumatic diseases and it is felt that they regulate the immune response in those conditions. This area is of intense research as it would lead to newer ways to be able to moniter disease and treat it.

# When a woman is not a woman: Problems and perplexities of Congenital Adrenal Hyperplasia

**Author's Name: V. Raveenthiran. MS., MCh, FRCS (Glas)**

Category of presentation Dr Pinnamaneni Narasimharao International Oration 2012

Abstract Congenital adrenal hyperplasia is an inborn error of hydroxylation enzymes involved in the synthesis of adrenal corticosteroids. Low cortisol levels and high androgen levels are characteristic of this disorder. As the hormonal milieu is altered even during embryonic period, female newborn with this disorder is born with male phenotype. Altered genital morphology and androgenic cortical imprinting present conflicting clinical demands. When these individuals are raised as females they are psychologically oriented towards maleness and when raised as males they are disabled by sexual inadequacy. Replacement therapy of corticosteroids is also fraught with the exacting demand of striking the correct balance between under and over treatment. Long term outcome of these individuals is not yet fully understood. Published literature on this topic is analyzed for quality of evidence and best available options are recommended for the management of these individuals.

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# SESSION 9

## IMSACON 2012

# Use of antibiotics in children with viral upper respiratory tract infections

**Dr.Meena K.N. Assistant Professor of Pharmacology,R.R.M.C.H,**

## OBJECTIVES:

To analyze:

- the pattern of antibiotic prescriptions in URTI in children aged 1 to14 years
- the rationality of prescriptions and suggest remedial measures.

## Materials and methods:

After institutional ethical committee clearance a prospective, observational study of 200 out patients in paediatrics OPD according to predetermined inclusion and exclusion criterias was conducted from to . Audited Prescription was framed in Excel Sheet and percentage of drug usage was calculated.

## Results:

A total of 200 prescriptions were audited. The most common diagnosis was non specific URTI( 87% ). The total number of drugs prescribed were 430 in 200 prescriptions and the average number of drugs / prescription was 2.15. Older generation antibiotics were used in the hospital. Amongst antimicrobial agents, Amoxicillin was prescribed for 60 (65%) patients followed by Cefotaxime 11 (12%),Azithromycin 5 (5.4%), cephalexin 4 (4.0%), roxithromycin 2 (2.0%), Cefuroxime 1 (1.0%), ciprofloxacin 1 (1.0%), ofIxacin 1 (1.0%), amoxicillin + clavulanic acid 1 (1.0%), ampicillin + cloxacillin 1 (1.0%), trimethoprim + sulphamethoxosol 1 (1.0%). The two rational combinations observed amongst fixed drug combinations were amoxicillin+clavulinic acid and sulphamethaxazole+trimethoprim. The combination of Ampicillin + Cloxacillin is not synergistic as cloxacillin is not active against the gram-negative bacteria and does not inhibit beta lactamase while ampicillin is not active against staphylococci.

## CONCLUSIONS:

- Improper use of AMAs for viral URTI is a serious matter of concern even though most of the viral URTIs resolve spontaneously.
- Rational prescribing messages should be promoted at national and local medical meetings.

Rajarajeswari medical college and hospital, Bangalore

# "Critical.PediatricPatients"
# Prof.Dr.Kodali.Krishna Rao.MD,PhD,FIMSA,FIAMS

Pediatric pharmacokinetics
Problems:
Children are not little adults
Body compartments
Absorption and distribution issues
Renal elimination
Hepatic elimination
Toxicity
Scaling adult doses to infants based on body weight or surface area does not account for developmental changes that affect drug disposition or tissue/organ sensitivity.
Excretory organ (liver and kidneys) development has the greatest impact on drug disposition (pharmacokinetics)
The most dramatic changes occur during the first days to months of life

## Factors Affecting Drug Distribution:

Physicochemical properties of the drug
Cardiac output/Regional blood flow
Degree of protein/tissue binding
Body composition
Extracellular water
Adipose tissue

N.B Plasma Proteins Change

| | Change from Adult Values | | |
|---|---|---|---|
| | Newborn | Infant | Child |
| Total protein | | | = |
| Albumin | | = | = |
| a1-Acid glycoprotein | | | = |
| Fetal albumin | present | Absent | Absent |
| Globulin | | | = |

Renal Ontogeny
Glomerular filtration rate:
Low at birth
GFR doubles by 1 week of age
Adult values by 6-12 months of age
Tubular function
Secretory function impaired at birth
Glomerulo-tubular imbalance
Adult values by 1 year of age
Maturation of Renal Function
fetal nephron development complete by 32wks gestational age
at birth, renal function is related to gestational age rather than birth weight, length or body surface area
the nephron matures after birth due to secretory load, regardless of GA
Proximal Tubular Function
rates of reabsorption of glucose, phosphate, bicarbonate and amino acids are lower (Fanconi's profile)
lower renal threshold for HCO3 and glucose
serum phosphate increased due to transient hypoparathyroidism
infants have higher serum phosphate than older child and adults
serum calcium decreased
Distal Tubular Function
acidification mechanisms intact
can reduce urine pH to 4.8 and excrete acid load
reduced ability to concentrate urine maximally but can dilute
immature handling of Na leads to inc. secretion, prolonged in premature babies
Urine Output
30% of babies void at birth or soon after
92% in 24h, 99% in 48h
in first 2 days 15cc/kg/ day
oliguria <1cc/kg/h
can also be polyuric- wt. loss>10%-DI
GFR and Creatinine
GFR quite low at birth and then slowly increases
Reaches adult levels (corr. to 1.73 m2) by 12-18 mos.
Creatinine higher the more premature the baby & take longer to stabilize
Creatinine values reflect maternal levels for first few days

Hepatic Ontogeny
Phase 1 (oxidation, hydrolysis, reduction, demethylation)
Activity low at birth
Mature at variable rates
Oxidative metabolism increases rapidly after birth

Alcohol dehydrogenase reaches adult levels at 5 yrs
Activity in young children exceeds adult levels
Phase 2 (conjugation, acetylation, methylation)
Conjugation:
Glucuronidation: - at birth
Sulfatation: at birth
Acetylation: - at birth
Cytochrome P450 (CYP) Enzymes
Super family of Phase 1 enzymes (oxidation, demethylation)
-17 Families and 39 subfamilies in humans
CYP1, CYP2, CYP3 are primary drug metabolizing enzymes
Half of all drugs metabolized by CYP3A subfamily
CYP3A4 is most abundant hepatic P450 enzyme and metabolizes at least 50 drugs.

## PHARMACODYNAMICS

Factors Affecting Drug Effects on the Infant:
I. Drug Absorption
II. Drug Distribution
III. Drug Metabolism
IV. Drug Excretion

## I. Drug Absorption

Absorption in infants and children follows the same rules as in adults.
Factors affecting absorption are determined by the physiologic status of the infant or child and are influenced by:
1.) Blood flow at the site of administration.
2.) Gastrointestinal function.

Drug Absorption in the neonate compared to adults.

| Drug | Oral Absorption |
|---|---|
| Acetaminophen | decreased |
| Ampicillin | increased |
| Diazepam | normal |
| Digoxin | normal |
| Penicillin G | increased |
| Phenobarbital | decreased |
| Phenytoin | decreased |
| Sulfonamides | normal |

1.) Blood flow at the site of administration:
- Physiological conditions that might affect blood flow are: cardiovascular shock, vasoconstriction (sympathomimetic agents), and heart failure.
- Diminished muscle mass may reduce blood flow causing irregular and unpredicatble absorption. Drug will concentrate in the muscle and if perfusion suddenly increases, drug may reach toxic concentrations.
E.g. cardiac glycosides, aminoglycoside antibiotics, and anticonvulsants.

## 2.) Gastrointestinal function:

Significant changes occur in the neonate shortly after birth.
Gastric acid secretion commences soon after birth and increases gradually over several hours. In preterm infants it appears slowly. Drugs affected by gastric pH should not be administered orally.
Gastric emptying is prolonged in the first day of life. Thus, drugs absorbed through GI may be more completely absorbed than anticipated.
Peristalsis in the neonate is slow. If drugs are absorbed in the small intestine, their effect may be delayed. Diarrhea causes decrease absorption in small intestine.

## II. Drug Distribution

As body composition changes with development so does the distribution volume of drugs.
In the neonate, 70-75% of body weight is water vs. 85% in preterm vs. 50-60% in the adult.
Most neonates will experience diuresis in the first 24-48hrs of life.
In neonate 40% of body weight is extracellular water vs. 20% in the adult.
In the neonate total body fat is 15% vs 1% in preterm.
Binding to Plasma protein
Protein binding of drugs is reduced in the neonate. Therefore, concentration of free drug in

plasma is increased => increased effect or increase toxicity.
Drugs (e.g. sulfonamide antibiotics) that displace bilirubin from albumin may cause kernicterus. Conversely, bilirubin may also displace protein-bound drugs (e.g. phenytoin).

## III. Drug Metabolism

Metabolism of most drugs occurs in the liver.
The metabolizing activity of cytochrome P450-dependent mixed-function oxidases is reduced in neonates (50-70% of adult values).
Glucoronide formation doesn't occur until the 3th -4rd years of life. Thus, in the neonate, drugs have slow clearance rates and prolonged half-lives.
If the mother was taking Phenobarbital, neonatal liver enzymes could have been induced. The ability of the neonate to metabolize certain drugs would be greater than expected and the effect could be less.

IV. Drug Excretion
Glomerular filtration is much lower (30-40% of adult) in neonates for the first few days of life. Within a week glomerular filtration and plasma flow increase by 50% and reach adult values within 6-12 months. Drugs that depend on renal flow are eliminated very slowly in the first few weeks of life (penicilins, aminoglycoside antibiotics, digoxin)
Ampicillin
< 7 days old=> 50-100 mg/Kg/d, 2d at 12 hr intervals.
> 7 days old => 100-200 mg/Kg/d, 3d at 8 hr intervals.

Dosage Forms and Compliance:
To ease administration and compliance, drug manufacturers prepare drugs as:
Elixirs. Alcoholic solutions in which the drug molecules are dissolved and evenly distributed.
Suspensions. Contain undissolved particles of drug which must be distributed throughout the vehicle by shaking to prevent uneven drug dispensing.

Compliance may be difficult to achieve in pediatric medicine and may prove a challenge when taking into account:
measuring errors
spills
spitting
A calibrated medicine spoon should be recommended.
Parents should be told to repeat dosage or not after spitting or whether to wake up the child every 6 hr dose day or night. Possible drug-drug interactions should be discussed.
NO ASSUMPTIONS SHOULD BE MADE ABOUT WHAT THE PARENT MAY OR MAY NOT DO.
Children's issues
Developmental pharmacology
Weight or SA-based dosing
Additional calculations
Prescribing
Dispensing
Administration
Double check calculations

Pediatric Administration Issues
Dispensing errors:
Limited range of suitable formulations
Doses ranges 0.1 mL – 10 mL
Fractions of tablets
Measuring small volumes:
Hundredths of a mL confused with tenths
0.03mL intended measured as 0.3ml
Prepare difficult doses in Pharmacy

High risk medicines and procedures:
Narcotics
Cancer chemotherapy
Oral methotrexate
Anticoagulants
Insulin
Injectable cardiovascular drugs

Lifespan Considerations
Majority of drugs have been focused on ages 13-65
< 30% of drugs have been appropriately tested and deemed suitable for pediatrics
Drugs behave differently in geriatrics and pediatrics
Resulting in  chances of toxicity and adverse reactions

Pediatric Dosage Calculations
Characteristics that play a role:
Skin thin & permeable
Stomach lacks acid to kill bacteria
Body temp are poorly regulated and dehydrate easily
Liver and kidneys are immature
Calculating the drug dose according to body wt is appropriate when the child is of normal stature (mg/kg)
Need:
Drug order
Pediatric wt in kg
Know usual dosage range per 24 hrs for mg/kg
Compare the drug dosage ordered with calculated safe range
Any concerns contact the physician

Pediatric considerations
Avoid disguising meds
Ask the parents what has worked in the past
Document what method was successful
May add small amount of H2O to elixirs
Don't refer to it as candy
Keep out of reach of children

Drug therapy during breastfeeding
A wide variety of drugs easily cross from the mothers circulation to breast milk
Fat soluble drugs are more likely to pass
Breast milk is not the primary route of excretion
Decisions must be based on a risk benefit ratio

N.B Examples For Drugs Contraindicated during Lactation:

Amphetamine
Bromocryptine
Cyclophosphamide
Cyclosporine
Doxorubicin
Ergotamine
Lithium
Methotrexate
Phenindione

## Conclusions:

Infants (esp. newborns) may have reduced capacity to eliminate drugs
Anticipate the effects of ontogeny on drug disposition based on route of elimination
More systematic pharmacokinetic studies of drugs in infants are needed
Tissue sensitivity to the toxic effects of drugs may be age-dependent

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# Pediatrics:Developmental Pharmacotherapeutics

**By:Professor.Dr.Kodali.Krishna Rao.**
MD, PhD, FCAI, FIMSA, FIAMS.

Contents:



Goal: To familiarize the student with the physiological differences between the adult and the pediatric patient populations with respect to alterations in pharmacokinetic parameters and pharmacotherapeutic considerations.

Objectives:

1. Define the following age-related terms:
Premature infant Term infant
Post-term infant Neonate
Infant Child
Adolescent Adult
2. List whether the normal range for the following monitoring parameters in infants and children are higher or lower than the adult normal values:
Respiratory rate CSF cell counts
Heart rate Hemoglobin/ hematocrit
Blood pressure Liver enzymes
Blood pH Serum creatinine
3. Describe the general dosing concepts in the pediatric patient population as they relate to weight, surface area, age and disease state.
4. Explain the special considerations which must be taken into account when using the intravenous route of administration in infants and children.
5. For each of the following kinetic parameters: Absorption, Distribution, Protein binding, Metabolism, Excretion
A. List the specific anatomical and/or physiological changes occurring during a child's growth and development which may effect the parameter.
B. Give an example of a drug and the direction in which the kinetic parameter is changed.
6. List specific age-related pharmacokinetic differences of theophylline and the aminoglycoside antibiotics.

## I. Introduction

A. Pediatrics --> Dynamic Patient Population

The pediatric population is a very dynamic one. Alterations of body composition, physiologic norms, pharmacokinetic parameters, and pharmacodynamics occur with maturation and growth throughout childhood.

So not only are pediatric patients very different than adults with respect to pharmacotherapy and drug dosing, but they are also very different from each other at different ages.

B. The following terms are used to define different pediatric age groups. These definitions are important to know as they are often used as dosing categories. For many drugs, different doses or mg/kg doses are recommended for these different age groups.

NOTE: Gestational age is generally thought of as the time from conception until birth. More specifically, gestational age is defined as the number of weeks from the first day of the mothers's last menstrual period until the birth of the baby. Infants born < 26 weeks gestation are generally considered to be previable.

1. Premature: born at < 37 weeks gestation
2. Term: 37 - 42 weeks gestation (Average = 40 weeks)
3. Post-term: > 42 weeks gestation
4. Neonate: 0 - 28 days old
5. Infant: 1 - 12 months old
6. Child: 1 - 12 years old
7. Adolescent: 12 - 18 years old
8. Adult: > 18 years old
9. Postconceptional age: Gestational age at birth plus postnatal age. Note: postnatal age refers to the chronological age since birth. Terms 4 through 8 refer to postnatal age.

## II. Monitoring Parameters

The normal values for many monitoring parameters in the pediatric population are different compared to the normal values found in adults. In order to adequately monitor pharmacotherapy in the pediatric population, one must be aware of the differences which occur in vital signs and

laboratory parameters.
A. Vital Signs 1
1. Respiratory Rate: The normal respiratory rate of infants and children is increased compared to adults, especially immediately after birth.

| Hr after birth | Average respiratory rate | Range |
|---|---|---|
| 1st hour | 60 breaths per minute | 20 - 100 |
| 2 - 6 hours | 50 breaths per minute | 20 - 80 |
| > 6 hours | 30 - 40 per minute | 20 - 60 |

| Age (years) | Mean RR (breaths/ minute) |
|---|---|
| 0 - 2 | 25 - 30 |
| 3 - 9 | 20 - 25 |
| 10 - 18 | 16 - 20 |

2. Heart Rate: The normal heart rate is increased in children of all ages compared to adults. The mean heart rate at 2 weeks of age is 148 beats per minute. The normal heart rate slowly decreases over time and adult normal values are reached by adolescence.

| Age | Mean Heart Rate (beats/minute) | Heart Rate Range (2nd - 98th percentile) |
|---|---|---|
| Less than 1 day | 123 | 93 - 154 |
| 1 - 2 days | 123 | 91 - 159 |
| 3 - 6 days | 129 | 91 - 166 |
| 1 - 3 weeks | 148 | 107 - 182 |
| 1 - 2 months | 149 | 121 - 179 |
| 3 - 5 months | 141 | 106 - 186 |
| 6 - 11 months | 134 | 109 - 169 |
| 1 - 2 years | 119 | 89 - 151 |
| 3 - 4 years | 108 | 73 - 137 |
| 5 - 7 years | 100 | 65 - 133 |
| 8 - 11 years | 91 | 62 - 130 |
| 12 - 15 years | 85 | 60 - 119 |

**3. Blood Pressure:** The normal values for blood pressure in children are significantly lower than adults. Typical blood pressures for a full term newborn would be in the range of 65 - 95 systolic / 30 - 60 diastolic. Blood pressures are also slightly different for boys vs girls. Blood pressures listed by percentiles are graphed below for girls and boys 0 12months and 1 - 13 years of age. Note: Percentiles, as you recall, refer to the percent of the population which would be at that value or less. For example, the 95th percentile systolic blood pressure for a 2 year old girl is 110 which means that 95 percent of 2 year old girls have a systolic blood pressure of 110 or less.These blood pressure graphs are used when monitoring pediatric patients in order to determine if a patient's blood pressure is normotensive or hypertensive. You'll see these again when we discuss pediatric hypertension. For now it is most important to note that blood pressures for children are lower than adults and that blood pressure increases with increasing age.B. Laboratory Normals: In addition to different normal values for vital signs, pediatric patients also have different normal values for many laboratory parameters. Several laboratory parameters and normal values for different ages are listed below. It is important to note the general direction of these labs in comparison to adults (i.e. note if the pediatric normal values are higher or lower than adult values) as well as noting increasing or decreasing trends over time with increasing age. Most importantly, one need NOT memorize specific values for different ages, but one must be aware that different normal values exist for pediatric patients. When monitoring a pediatric patient (or evaluating a pediatric case) one needs to look up the normal laboratory value for age in order to appropriately monitor that patient in term of efficacy and toxicity of their drug therapy.

1. Hematology: Hemoglobin, hematocrit and RBC indices are different for different ages. Newborns have a relative polycythemia due to the low arterial PO2 in utero which stimulates erythropoietin production in the fetus and results in a high rate of erythropoiesis. After birth, PO2 increases and the rate of erythropoiesis decreases. This decrease in erythropoiesis, plus an increase in RBC destruction, results in a decrease in Hgb values which drop to their lowest means in term infants at approximately 6 - 12 weeks (usual nadir of 9.5 - 11.0 gm/dl at 2 months of age). This normal decrease in Hgb, which occurs earlier in premature infants, is termed "physiologic anemia". Physiologic anemia is normochromic, microcytic, and is accompanied by a low reticulocyte count. If iron stores are adequate, as oxygen demand increases, erythropoietin, reticulocyte count and hemoglobin will all increase.

| Age | Mean Hgb | Mean Hct |
|---|---|---|
| term (cord) | 16.5 | 51 |
| 1-3 days | 18.5 | 56 |
| 2 wks | 16.6 | 53 |
| 1 month | 13.9 | 44 |
| 2 months | 11.2 | 35 |
| 6 months | 12.6 | 36 |
| 6 m - 2 yrs | 12.0 | 36 |
| 6 m - 2 yrs | 12.0 | 36 |
| 2 - 6 yrs | 12.5 | 37 |
| 6 - 12 yrs | 13.5 | 40 |
| 12 - 18 yrs | | |
| male | 14.5 | 43 |
| female | 14.0 | 41 |
| Adult | | |
| male | 15.5 | 47 |
| female | 14.0 | 41 |

2. Liver enzymes: Certain liver enzymes are normally higher in children compared to adults.

a. Alanine Aminotransferase (ALT) (SGPT)

| | |
|---|---|
| Infants | < 54 U/L |
| Children/Adults | 1 - 30 U/L |

b. Alkaline phosphatase: As you recall, alkaline phosphatase is also found in bone and higher normal values for children probably reflect increase bone growth.

| | |
|---|---|
| Infant | 150 - 400 U/L |
| 11 - 18 yrs male | 50 - 375 U/L |
| female | 30 - 300 U/L |
| Adult | 30 - 100 U/L |

c. Aspartate Aminotransferase (AST) (SGOT)

| | |
|---|---|
| Newborn/Infant | 25 - 75 U/L |
| Child/Adult | 0 - 40 U/L |

c. Serum Creatinine: Serum creatine is lower in children compared to adults mostly due to the lower muscle mass seen in children. Looking at the list below, one can see that if a 1 year old child had a serum creatinine of 1.2 mg/dl (a value which would be considered normal for adults) the child would have an approximately two fold elevation in serum creatine for age and significantly decreased renal function.

Upper limits (mg/dl)

| AGE (YRS) | MALE | FEMALE |
|---|---|---|
| 1 | 0.6 | 0.5 |
| 2 - 3 | 0.7 | 0.6 |
| 4 - 7 | 0.8 | 0.7 |
| 8 - 10 | 0.9 | 0.8 |
| 11 - 12 | 1.0 | 0.9 |
| 13 - 17 | 1.2 | 1.1 |
| 18 - 20 | 1.3 | 1.1 |
| ADULT | 1.2 | 1.4 |

4. Blood pH: Newborn term and preterm infants have a lower blood pH during the first few days of life compared to adults (e.g., term infant 7.26 - 7.29). This lower blood pH can effect the protein binding of certain drugs.

5. Other Labs: There are many other age related differences in the normal ranges for other laboratory measurements including: serum calcium, phosphorus, iron, albumin, GGT, LDH, bilirubin, bicarbonate, TG, cholesterol, blood pH, CSF values, etc..

III. General Concepts

A. Weight

1. Pediatric doses are usually expressed as mg/kg/day or mg/kg/dose with the dosing interval specified.

2. Weight is the most commonly used patient variable to standardize pharmacokinetic parameters e.g., volume of distribution is usually expressed as liters/kg in order to compare values from patient to patient.

B. Surface Area

1. Infants have a larger surface area per kg body weight compared to adults.

2. There is a very good correlation of surface area with cardiac output, glomerular filtration rate and body organ growth and development.

3. However, since surface area is more difficult to calculate most medications are still dosed per kg body weight.

4. Some medications which require very accurate dosing are dosed upon surface area (e.g. chemotherapy)

C. Age

1. Developmental Pharmacotherapeutics: Changes in pharmacokinetic parameters and pharmacodynamic responses occur with maturation throughout childhood.

2. For most drugs, the recommended daily dose (mg/kg/day) as well as dosing interval, will vary dependent upon age group. This is usually due to changes in clearance of the drug for different age groups. Theophylline is a good example:

| Age | Theophylline dose[1] |
|---|---|
| 2 - 6 months | 6 - 15 mg/kg/day |
| 6 - 12 months | 15 - 22 mg/kg/day |
| 1 - 9 years | 22 mg/kg/day |
| 9 - 12 years | 20 mg/kg/day |
| 12 - 16 years | 18 mg/kg/day |
| adults | 13 mg/kg/day |

D. Disease States

1. Certain disease states can effect the dose per kg weight of a medication. This can be due to an alteration in pharmacokinetics or pharmacodynamics.

Children with cystic fibrosis, for example, have an increased clearance of aminoglycosides and require more frequent dosing.

An initial gentamicin dose for a pediatric cystic

fibrosis patient may be 2.5 mg/kg every 6 hours (10 mg/kg/day), while an infant without cystic fibrosis would receive 2.5 mg/kg every 8 hours (7.5 mg/kg/day).

2. Therapeutic concentrations may vary with a given disease state. In addition, certain disease states are seen only in the pediatric population. Theophylline for example, has different therapeutic ranges for different diseases. These two disease states are typically found in different age groups.

Therapeutic theophylline concentrations:

| | |
|---|---|
| Apnea of prematurity | 5 - 12 mcg/ml |
| Asthma | 10 - 20 mcg/ml |

Note: Apnea of prematurity is seen in young premature infants. A lower range of theophylline concentrations is used with apnea of prematurity due to several factors:

a. A different mechanism of action is being utilized. For apnea of prematurity, theophylline>s central stimulation of $pCO_2$ receptors is important, while in asthma the main mechanism of action is bronchodilation.

b. Newborns and young infants have a higher free fraction of theophylline, so that at a given serum concentration of theophylline more of the drug is free (active).

c. Accumulation of an unmeasured active metabolite (caffeine) occurs in newborns and young infants. At a given serum concentration of theophylline the unmeasured caffeine can also be contributing to the pharmacologic as well as toxic effect.

3. As with adults, drug doses need to be adjusted for renal and liver disease depending upon the route of elimination for that specific drug.

E. Age related idiosyncratic reactions can also occur.

1. Phenobarbital, which usually causes sedation in adults, can cause hyperactivity in pediatric patients.

2. Methylphenidate (Ritalin$^R$), an amphetamine, is actually used to treat hyperactivity in pediatric patients.

F. Special Considerations: Drug Administration.

1. Parenteral

a. The method of IV administration can alter the peak concentration of aminoglycosides by as much as 2.5 mcg/ml (Autosyringe pump vs IVAC at Y site) and may delay the time to peak. Since peak concentrations are effected more than trough concentrations, this can result in calculation of a larger Vd and longer $t_{1/2}$.

b. The syringe pump (along with delivery of the drug at the IV site closest to the patient) is the most accurate method of IV drug delivery.

c. Avoid the non-traditional "retrograde" infusion method.

d. Avoid the buretrol infusion method with very low infusion rates (especially for medications which require therapeutic drug monitoring) as serum drug concentrations can often be unpredictable.

e. Piggybacks, IV riders or Intermate$^R$ infusion devices may deliver too much free water to an infant or small child and cause hyponatremia which may lead to CNS symptoms such as seizures. Calculation of the additional fluids delivered with these methods needs to be taken into consideration in small children.

2. Oral: practical aspects of medication delivery and compliance issues

a. Infants and small children are often "uncooperative" in taking medications which makes it difficult for parents to continue to administer them as prescribed.

b. Adolescents are notorious for being non-compliant.

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IV. Age Related Pharmacokinetic Differences[4]

Many age related differences in absorption, distribution, metabolism and elimination exist.

A. Absorption

1. Oral: Several age related factors may effect the oral absorption of drugs.

a. Gastric emptying time in neonates and premature infants is prolonged (up to 6-8 hours) with adult values being reached at 6-8 months of age. Gastric emptying time is dependent upon gestational age, postnatal age, and type of feeding. The prolonged gastric emptying time seen in neonates and young infants results in delayed drug absorption. A delay in the time to peak as well as a decrease in the peak concentration of several drugs may be seen.

b. Peristalsis in the newborn can be irregular and unpredictable. This may result in a prolonged contact time with the G.I. mucosa and possibly an increase in drug absorption.

c. Gastric pH: At birth gastric pH ranges from 6 - 8 due to residual amniotic fluid in the stomach. (Amniotic fluid is regularly swallowed during intrauterine life.) Gastric pH then falls to a pH of 1.5 to 3 within 24 to 48 hours after birth but during the first week of life returns to neutrality. Gastric pH then decreases gradually to adult values after approximately 2 years of age (range 3-7 yrs). This higher pH which normally occurs during this time is referred to as a "relative achlorhydria".

This relative achlorhydria can result in an increased bioavailability of acid labile drugs such as penicillin, nafcillin, and ampicillin and a decreased absorption of acidic drugs such as phenobarbital, phenytoin, and nalidixic acid. (Remember that a weakly acidic drug in a relatively alkaline environment will result an increase in the ionized form of the drug which would result in decreased absorption.)

d. Mucosal Absorption: Maturational changes in intestinal "permeability" and active transport rates may also be seen. This may also account for the decreased rate of absorption for digoxin and phenobarbital seen in newborns.

e. Bacterial Colonization: Changes in bacterial colonization may also effect the absorption of drugs.

f. Decreased Biliary Function: Premature infants have been shown to have a decreased bioavailability of vitamin E due to an impaired ability to synthesize bile salts and pancreatic enzymes.

g. Practical Aspects: Pediatric patient, more so than adults, may be prone to certain events which may alter the oral absorption of medications. These factors include: emesis, NG suction, severe illnesses which may decrease cardiac output and G.I. perfusion, malabsorption syndromes, gastroenteritis, diet, diarrheal episodes which may decrease intestinal transit time, and prolonged infantile diarrhea which may increase drug absorption due to mucosal changes.

2. Rectal: A proper dosage formulation is need for adequate rectal absorption of drugs in pediatric patients.

a. Rectal valproic acid absorption can be comparable to oral. (VPA must be diluted 1:1 with water for recta

l use due to its mucosal irritation)

b. Theophylline has very erratic rectal absorption which has resulted in toxicities as well as fatalities in pediatric patients. Rectal use is not recommended.

3. Intramuscular

a. IM absorption may be variable or delayed in the newborn and premature infant due to:

1. Peripheral vasomotor instability with changes in relative blood flow

2. Decreased muscular contraction

3. Circulatory insufficiency

b. Neonatal reduction in I.M. absorption rate has been reported for diazepam, digoxin and gentamicin

4. Percutaneous

a. Increased absorption via the skin has been reported for newborns due to their:

1. Decreased thickness of stratum corneum

2. Increased skin hydration

3. Increased surface area per weight

b. Toxicities in newborns and young infants have been reported after the topical use of the following agents: boric acid ointment, hexachlorophene soap, salicylic acid ointment, hydrocortisone creams, and rubbing alcohol.

c. The increase in percutaneous absorption seen in newborn and premature infants may possibly be put to therapeutic use. Topical application of a theophylline gel in premature infants has been reported to result in therapeutic serum concentrations. Further studies are needed before this route of administration can be routinely used.

**B. Distribution:** Body composition changes with age and this can result in alterations in distribution volumes for many drugs.

1. Total body water as a percent of body weight is much higher in children less than a year of age when compared to adults and is highest in the fetus and premature infant.

| Total Body Water: | % Body Weight as Water |
|---|---|
| Fetus | 94% |
| Premature infant | 85% |
| Full-term | 78% |
| 4-6 month old | 70% |
| One yr old | 60% |
| Adult | 55% |

Generally, this increase in total body water results in an INCREASED VOLUME OF DISTRIBUTION FOR WATER SOLUBLE DRUGS in pediatric patients compared to adults.

2. Extracellular water (ECW) vs Intracellular water (ICW): Changes also occur in the intracellular and extracellular water compartments with age. A higher percent of total body water, as well as a higher percent of body weight, is found as extracellular water in the neonate compared to an adult. In other words, the ECW:ICW ratio is higher in newborns compared to adults.

| | | |
|---|---|---|
| **Neonate** | ICW:43% Total Body Water | ICW: 34% Body Weight |
| | ECW:57% Total Body Water | ECW: 44% Body Weight |
| **Adult** | ICW:68% Total Body Water | ICW: 41% Body Weight |
| | ECW:32% Total Body Water | ECW: 19% Body Weight |

The volume of distribution for water soluble drugs which distribute to the extracellular water compartment roughly parallel ECW as a percent body weight. Aminoglycosides, for example, have a mean Vd in adults of roughly 0.2 - 0.26 l/kg which is close to the 19% body weight as ECW as listed. In neonates, however, the volume of aminoglycosides is increased and is near the 0.44 l/kg as listed above.

3. Adipose Tissue: Newborns have differences in adipose tissue compared to adults which result in alterations in drug disposition.

a. Neonates have a decreased amount of adipose tissue as a percent of their body weight compared to the average adult.

Percent Body weight as adipose tissue:

| | |
|---|---|
| 0.5% | 5 month gestation fetus |
| 12 - 16% | Full term newborn (Note: this is similar to a *very* athletic adult) |

b. The adipose tissue that neonates do have contains more water than the fat of adults.

c. Both the decreased amount of adipose tissue and the higher water content of neonatal fat will decrease the volume of distribution for fat soluble drugs. Example:

Diazepam Vd:

Neonate 1.4 - 1.8 l/kg

Adult 2.2 - 2.6 l/kg

4. Compared to adults, neonates also have a decreased skeletal muscle mass which can effect drug distribution.

5. Newborns also have altered tissue affinity and membrane permeability.

a. Due to the immaturity of the brain, the neonate has an increased permeability of the CNS to certain drugs such as phenytoin. The higher

brain to plasma concentration ratio which can be seen may be due to the lower myelin content and increased cerebral blood flow that occurs in the neonate compared to the adult.

b. The newborn has an increased permeability of RBC for certain drugs. For example:

RBC:Cp ratio

| | Newborn | Adult |
|---|---|---|
| Digoxin | 3.6 | 1.3 |
| Theophylline | 1.0 | 0.5 |

c. This increased tissue affinity and increased permeability of drugs into neonatal tissue can result in an increased volume of distribution.

6. Ideal Body Mass (IBM) vs. Total Body Weight

a. As you know, due to distribution properties, some drugs are dosed on IBM or lean body weight (LBW) rather than total body weight. These pharmacokinetic principles should also apply in children. A problem occurs however, when trying to calculate these dosing weights in children. One cannot routinely use the LBW equations which are used in the adult population. For example:

$LBW_{males}$ = 50 kg + (2.3 kg for every inch over 5 feet)

Since there aren't very many children over 5 feet, these equations cannot be used. (Note: These equations can be used in children over 5 feet)

In order to evaluate ideal body mass in children, one must first have an idea of normal physical growth in pediatric patients. On the next page, the graph on the left which is adapted from the National Center for Health Statistics[1] shows the percentiles for normal physical growth for weight and height by age. These growth curves are used to evaluate a child's physical development. A child's height and weight for his/her given age is plotted on the graph and the percentile height and weight are noted. A one time measurement gives the clinician an idea of the child's body habitus.

For example, if a child is greater than 95th percentile for weight but less than 5th percentile for height, it would indicate that the child is overweight and short for their age.

Multiple plotting of a child's height and weight over time will determine if the child is following along a growth curve and growing properly.

b. The IBM for children is defined as the 50th percentile weight for a given height (irrespective of age). The graph below on the right or the following equation[5] can be used in pediatric patients to calculate IBM.

$IBM = 2.396\ e^{0.01863\ (Ht)}$

where IBM = ideal body mass in kg

Ht = height in cm

(NOTE: One must remember that IBM contains adipose tissue whereas LBW does not. In order to calculate LBW in children one must use anthropometric measurements)

C. Protein Binding: In general, neonates have decreased protein binding of many drugs compared to adults. The decrease in protein binding can result in a higher free fraction for many drugs and a higher apparent volume of distribution. The decreased protein binding in neonates is due to the following reasons:

1. Decreased concentrations of total plasma proteins

Neonates have approximately 80 % of the serum protein as that of an adult. The full adult value for plasma protein binding is not reached until end of first year of life.

a. Neonates have decreased concentrations of serum albumin

Serum Albumin

| | |
|---|---|
| Adult | $4.5 \pm 0.4$ gm/dl |
| Neonate | $3.7 \pm 0.2$ gm/dl |

b. Neonates have decreased gamma globulin concentrations: Gamma globulin binds non-acidic drugs. Adult values of gamma globulin are reached at 7 - 12 years of age.

c. Neonates also have decreased concentrations

of serum lipoproteins.

2. Decreased affinity for drugs by fetal albumin: A decreased fetal albumin affinity has been reported for ampicillin, phenytoin, phenobarbital, salicylate, propranolol, and bilirubin.

3. Lower plasma pH: The lower plasma pH seen during the first few days of life can decrease protein binding.

4. Endogenous interfering substances may exist at higher concentrations in the neonate compared to the adult. These endogenous interfering substances such as free fatty acids and bilirubin may compete with acidic drugs at albumin binding sites and may result in decreased drug protein binding (i.e., an increase in the free fraction or percent unbound of a drug). Example: Phenytoin free fraction is higher in neonates compared to adults and is increased further in infants with hyperbilirubinemia.

| | | Unbound Phenytoin | Albumin gm/dl |
|---|---|---|---|
| Normal infants | | 10.6 + 1.4% | 3.5 + 0.4 |
| Adults | | 7.4 + 0.7% | |
| Hyperbilirubinemic | infants: Bilirubin | | |
| Total | 4.5 + 0.5 mg% | 15.5 + 3.3% | 3.8 + 0.5 |
| Direct | < 1.9 mg% | | |
| Total | 20 mg% | 20% | |

NOTE: Certain drugs such as sulfonamides may displace bilirubin from albumin binding sites and cause kernicterus. Kernicterus occurs when non-albumin-bound, unconjugated bilirubin enters and deposits in the brain. Its toxic effects include severe mental retardation.

5. Transplacental interfering substances acquired from the mother in utero may also effect protein binding of drugs in the neonate.

D. Metabolism: Varying maturational rates for different metabolic pathways exist (i.e. enzyme activity matures at different ages for different enzymes).

1. Newborns

a. Newborns have decreased activity of many enzyme pathways. Typically, if a drug's primary metabolic pathway is decreased, clearance of the drug is decreased and daily maintenance doses must be decreased or accumulation of the drug will result. This explains the decreased mg/kg/day doses which are required for many drugs in neonates.

1. Esterase (hydrolysis) activity is decreased in newborns and increases gradually over first year of life. Example: decreased hydrolysis of procaine ester anesthetics.

2. Hepatic microsomal activity (oxidative reactions) is also decreased in neonates.

In vitro evaluation of enzyme activity has demonstrated that for a term infant: Cytochrome P-450 and NADPH-Cytochrome C-Reductase Activity are approximately 1/2 that of adult values. (range: 20-70%)

Newborns have decreased hydroxylation activity which results in decreased metabolism of phenobarbital, phenytoin, lidocaine, amobarbital and diazepam.

Newborns have decreased N-demethylation activity (Dealkylation) which results in the decreased metabolism of theophylline, meperidine and diazepam.

3. Glucuronide Synthesis (Microsomal) is decreased in the newborn and reaches adult levels by 3 years of age. Due to decreased activity of UDPG - glucuronyl transferase, a decrease in the metabolism of bilirubin, morphine, and chloramphenicol is observed in neonates.

NOTE: The decreased metabolism of chloramphenicol in neonates (coupled with administration of higher than required doses) was responsible for the gray baby syndrome. Chloramphenicol accumulated and caused toxic effects including circulatory collapse, an ashen gray appearance, and death. After the recommended doses for chloramphenicol were reduced, few cases of gray baby syndrome were reported. (More recent cases of gray baby syndrome have been reported due to toxic overdoses of chloramphenicol.)

4. Glycine conjugation is decreased in neonates and reaches adult levels at approximately 8 weeks of age. Because of decreased Glycine conjugation, Benzoic acid can accumulate in newborns given

excess benzyl alcohol or benzoic acid.

Benzyl alcohol--> benzoic acid ---->

glycine conjugation-----> hippuric acid.

This accumulation of benzoic acid results in the "benzyl alcohol gasping syndrome" with deterioration of multiple organ systems, severe metabolic acidosis and gasping respirations. This is a dose related syndrome and has been reported with doses of benzyl alcohol greater than 99 mg/kg. Because of this syndrome, the FDA now recommends that drugs containing benzyl alcohol or benzoic acid as preservatives should NOT be used in neonatal nurseries. Therefore,

USE PRESERVATIVE FREE MEDICATIONS FOR NEONATES ESPECIALLY PREMATURE NEWBORNS.

b. Adequate activity for several enzymes in neonates has been reported

1. Methylation (acetylation) can be adequate or increased at birth. Methylation is needed for neonatal surfactant synthesis. Methylation of theophylline to caffeine occurs in neonates.

2. Sulfate conjugation (sulfonation) is relatively mature at birth. Example: acetaminophen sulfonation pathway.

2. Children: Increased activity of the hepatic microsomal enzymes is seen in children, especially those 2 to 4 years of age. Hepatic microsomal activity two - six times the adult activity has been reported. This increase in activity may be due to the relatively larger liver size in comparison to total body weight seen in children vs adults. Because of this increase in hepatic microsomal activity, the maintenance doses for many drugs are higher (mg/kg/day) compared to adults. Examples: phenytoin, phenobarbital, theophylline.

3. Other factors besides enzyme activity effect metabolism.

a. Potential enzyme-substrate specificity changes may occur during development (i.e., affinity for substrates may change with maturation).

b. Effects of intrauterine or postnatal exposure to drugs may also be observed. For example, the $t_{1/2}$ of diazepam may be greatly shortened if a newborn is exposed to phenobarbital.

| | Diazepam t 1/2 |
|---|---|
| Premature infant | 40-100 hours |
| Full term newborn | 20-45 hours |
| Adult | 15-25 hours |
| Newborn with Phenobarbital Exposure | 12-18 hours |

E. Renal Elimination: At birth glomerular filtration, tubular secretion and tubular reabsorption are all decreased in comparison to adults. Renal function matures in the following order: first glomerular filtration, then tubular secretion, and finally tubular reabsorption.

1. Glomerular filtration:

a. Nephrogenesis occurs through 35 weeks postconceptional age with an increase in renal mass occurring throughout gestation and continuing after birth.

b. At birth, glomerular filtration rate dramatically increases from what it was in utero (see figure 1). This increase in GFR at birth is due to:

-increases in cardiac output

-increases in renal blood flow

-changes in renal blood flow distribution (gradual shift from deep juxtaglomerular nephron to outer cortex with probable changes in permeability of glomerular membrane)

c. Although GFR rises at birth, it is still very much decreased in comparison to adults. A premature infant's GFR at birth is approximately 0.7 - 0.8 ml/min or about 0.5% that of an adult. A full term newborn's GFR equals approximately 2-4 ml/min (10-20 ml/min/1.73m$^2$). (Keep in mind that an adult with a GFR $\leq$ 10 would probably be on dialysis.)

d. A significant increase in GFR is seen by the 1st week of life with a two fold increase seen by about 14 days of age (figure 2). This explains why many drugs that are renally eliminated have an increase in the recommended dose after the first week or so of life.

e. GFR is approximately 70 ml/min/$m^2$ at 1 yr of age.

f. Plasma creatinine at birth reflects maternal creatinine.

2. Tubular secretion, which transports drugs from the peritubular capillaries into the lumen of the renal tubule, is decreased at birth (20-30% of adult values).

a. The transport maximum (Tm) has been reported to be lower in newborns for PAH, glucose, phosphate and bicarbonate. Keep in mind however, that the Tm is related to GFR, i.e., Tm may be reported to be decreased due to the decrease in GFR. Tm can however, be induced in utero.

b. NOTE: Glomerular function more is more advanced than tubular function (up to 6 months of age)

3. Tubular Reabsorption is decreased at birth and is the last renal function to mature.

a. Tubular reabsorption is a passive process and is concentration dependent. Neonates have a decreased concentration gradient which can result in decreased reabsorption.

b. Tubular reabsorption is pH dependent. Neonates have a relatively lower urine pH which can also effect the reabsorption of drugs. In addition, the normal diurnal variability in urine pH is not present in the first 2 years of life.

4. Renal toxicities: The decreased renal clearance for drugs which occurs in patients < 2 years of age may increase the risk of drug toxicity due to drug accumulation. However, the decreased capacity of kidney cells to take up and store drugs may actually decrease the renal toxicity of certain drugs. Or put another way, newborns and young infants may possibly have less inherent tissue sensitivity for drug toxicity compared to adults.

5. Increased renal clearance: At 2 - 24 months of age GFR and tubular secretion are more mature than reabsorption. This can result in an increase in renal clearance of drugs. Example: digoxin.

6. Hypoxic events: Hypoxic events which may occur in premature infants and newborns can cause further decreases in renal function.

7. Determination of CrCl from SCr: Equations used in adult patients cannot be used in pediatric patient s to calculate creatinine clearance from serum creatinine determinations. Due to the different ratio of muscle mass to serum creatine seen in children compared to adults, other equations must be used.

a. Equation one: CrCl = 0.48 x Ht/SCr

CrCl = creatinine clearance in ml/min/1.73 $m^2$

Ht = height in cm

SCr = serum creatinine in mg/dl

This equation can be used for children ages 1 - 18 years. It is less accurate with heights < 107 cm. An equal number of CrCl are over and under estimated with this equation.

b. Equation two: CrCl = K X Ht/SCr

Units are same as above but K, a constant of proportionality, represents urinary creatinine excretion per unit of body size and is different for children of different ages. Although more complex, this equation is thought to be more accurate than equation 1.

| AGE | K |
|---|---|
| Low birth weight ≤ 1 year | 0.33 |
| Full term ≤ 1 year | 0.45 |
| 2 - 12 yrs | 0.55 |
| 13 - 21 yrs Females | 0.55 |
| 13 - 21 yrs Males | 0.70 |

10. Adjustment of drug doses in pediatric renal failure patients[1] As in adults, doses of drugs that are renally eliminated need to be adjusted in pediatric patients with renal dysfunction. The methods described here allow for initial adjustment of doses in renal failure.

a. Interval extension method (I): With this method the size of the dose is kept normal and the interval between doses is lengthened. The chart on the next page shows the number of hours between doses of normal size for different

CrCl. This method is preferred for drugs such as aminoglycosides and vancomycin.

b. Dose reduction method (D): With this method the size of the individual dose is reduced, keeping the interval between doses normal. This method is recommended for drugs in which a relatively constant blood level is desired. The chart gives the percentage of the usual dose that should be given at the normal dosing interval

c. Keep in mind that dosage adjustments are approximations only. The individual patient must be followed closely for signs of drug efficacy, and toxicity. Serum levels of the drug should be measured when available and the dosage and interval modified accordingly.

d. With either the interval extension (I) or dose reduction (D) method, first calculate the dose for the child as if the patient had normal renal function. Then use the chart to either give the normal dose at an extended interval (method I) or give a reduced dose at the normal interval (method D). Either way the daily dose for the patient is reduced due to the decreased renal function.

Example: Gentamicin dosing in a 2 month old infant with CrCl = 8 ml/min, weight = 5 kg. NOTE: Normal gentamicin dose = 7.5 mg/kg/day divided every 8 hours or

2.5 mg/kg/dose every 8 hours.

The normal dose for this patient if CrCl was normal = 12.5 mg every 8 hours. (2.5 mg/dose x 5 kg = 12.5 mg/dose)

Using the interval extension method, the chart below lists an interval of every 24 hours for CrCl < 10 ml/min. Therefore, an appropriate initial dose for this patient would be 12.5 mg every 24 hours.

F. Age related pharmacodynamic differences due to alterations in receptor sensitivity and maturation of innervation also occur.

V. Specific Drugs

A. Theophylline

1. Absorption (oral)

a. "Fast" release preparations, preferably non-alcohol containing liquids, are usually used in children less than 1 year of age. Example: Aminophylline liquid (Somophylline$^{R}$)

b. Sustained - released preparations are designed for dosage intervals of 12 hours, however the intestinal transit time may be less than 8 hours in younger infants. As a result, use of sustained release preparations in young infants may result in incomplete and highly variable absorption (i.e., the sustained release product can be excreted in the stool before the drug is absorbed).

2. Distribution : The volume of distribution for theophylline is larger in neonates and infants compared to children and adults.

| | Vd (l/kg) |
|---|---|
| Neonates | 0.7 - 0.8 |
| Infants | 0.5 - 0.6 |
| Children | 0.45 - 0.5 |

3. Protein Binding

a. Approximately 60% protein bound

b. Protein binding is reduced in neonates

c. Protein binding may be altered by acidemia

4. Metabolism and Excretion

The figure on the next page (figure 32-8) depicts the metabolic pathways for theophylline. Theophylline (1,3 dimethylxanthine) can be excreted unchanged in the urine, methylated to caffeine, demethylated to 3 methylxanthine, 8-hydroxylated to 1,3 dimethyluric acid, and demethylated to 1 methylxanthine, an intermediate metabolite which rapidly converts to 1 methyluric acid.

Since theophylline hepatic metabolism (demethylation and hydroxylation pathways) is decreased in neonates, a greater percent of a dose of theophylline is excreted unchanged in the urine compared to adults Since neonates have the capacity to methylate, they can methylate

theophylline to caffeine. However, since neonates have decreased demethylation activity, the caffeine cannot be easily metabolized and therefore accumulates.

NOTE: The $t_{1/2}$ of caffeine in neonates has been reported to be as long as 68 - 100 hours, while the $t_{1/2}$ of theophylline in neonates is 20 - 30 hours.

Note also that both the demethylated metabolites (3 methylxanthine and 1 methyluric acid) and hydroxylated metabolite (1,3 dimethyluric acid) are decreased in premature infants and neonates compared to adults. In addition to these changes in metabolites, theophylline clearance increases approximately 5 fold over the first year of life. The basic pattern of low clearance in the neonatal period followed by rapid clearance in early childhood (see Figure 10-4 next page) is also seen with other drugs that are cleared by the hepatic microsomal P450 pathways (e.g. phenobarbital and phenytoin).

a. Theophylline clearance is age-related as depicted in the above figure, i.e., theophylline clearance is related to postnatal age (PNA).

| **Population (mean age)** | **ml/hr/kg** |
|---|---|
| Premature (7.5 days) | 17.4 |
| Premature (41 days) | 38.4 |
| Term infants < 6 m (18 weeks) | 48.0 |
| Term infants 6 - 11 m (34 weeks) | 120.0 |
| 1-4 yrs (2.5 years) | 102.0 |
| 4-12 yrs (9.4 years) | 96.0 |
| 13-15 yrs (14 years) | 54.0 |
| Adult (non-smoker) | 40-51 |

b. In newborns and infants, the level of hepatic maturation at birth must also be considered. In other words, the individual>s gestational age at birth (GA) as well as the PNA will influence theophylline clearance. Postconceptional age (PCA), which is equal to GA plus PNA, has been found to explain the greatest amount of interpatient variability in theophylline clearance during the first year of life.[13] Further studies incorporating PCA into infant theophylline dosage guidelines are needed.

| Theophylline $t_{1/2}$ : | (hours) |
|---|---|
| premature 7.5 days old | 30±6.3 |
| 41 days old | 20±5.3 |
| full-term | 24 |
| Infants | 0.8-8.6 |
| Children 1-4 yrs | 1.9-5.5 (mean = 3.4) |

c. Urinary Excretion Patterns

d. Summary [11]

5. Theophylline dosing guidelines

a. Therapeutic range (summary)

-Neonates (apnea of prematurity): 5 - 12 mcg/ml

-Other age groups (asthma): 10 - 20 mcg/ml

b. Usual loading dose: 5 mg/kg theophylline or 6 mg/kg aminophylline

c. Initial maintenance dosage

NOTE: Dose dependent pharmacokinetics due to enzyme saturation have been reported for theophylline in pediatric patients. A disproportionate increase in Cp in relation to dose has been observed. Dose dependent kinetics of theophylline have been seen with dosage increases 1.5 - 2 times the original dose. Increases > 25 to 30 % of the original dose are not usually recommended for dosage adjustments.

B. Aminoglycosides

1. Absorption

a. Oral: poorly absorbed

b. IM: not recommended for low birth weight (LBW) premature infants with low muscle mass or acutely ill infants with vasomotor instability.

2. Distribution

a. Distributes primarily into extracellular fluid space

b. Extracellular water (ECW)

| | |
|---|---|
| < 3 month fetus | 65% of body weight |
| 40 weeks gestation | 35 - 44 % of body weight |

| | |
|---|---|
| 12 months | 26 - 30 % of body weight |

c. Volume of distribution correlates with ECW

d. As in adult patients, physiologic and pathologic factors which effect ECW will also effect the Vd for the aminoglycosides in the pediatric population.

In fact, the volume of distribution of aminoglycosides in pediatric intensive care unit (PICU) patients has been found to be greater than non-PICU literature values. [16] This increased Vd may be the effect of certain disease states or severity of illness.

3. Elimination

a. Gentamicin clearance correlates well with creatinine clearance and postconceptional age.

b. Half-life shortens with increasing postconceptional ages.

| PCA | mean $t_{1/2}$ |
|---|---|
| ≤ 30 weeks | 8.86 hours |
| 30 - 37 weeks | 6.62 hours |
| ≥ 37 weeks | 5.12 hours |

c. Initial dosing (gentamicin/tobramycin/ netilmicin)

1. Premature infants

| Postconceptional age | Dose |
|---|---|
| < 30 weeks | 2.5 mg/kg/dose Q 24 hours |
| 30 - 34 weeks | 2.5 mg/kg/dose Q 18 hours |
| ≥ 35 weeks | 2.5 mg/kg/dose Q 12 hours |

2. Full term infants

| Postnatal Age | Dose |
|---|---|
| ≤ 7 days | 2.5 mg/kg/dose Q 12 hours |
| > 7 days | 2.5 mg/kg/dose Q 8 hours |

3. Children

Few well designed studies of gentamicin dosing outside of the neonatal age group have been reported. One study proposed the following dosing guidelines for gentamicin in children.

| Age | Dose* | Calculated Vd |
|---|---|---|
| 0.5- 5 yrs | 2.5 mg/kg | 0.5 l/kg |
| 5-10 yrs | 2.0 mg/kg | 0.4 l/kg |
| > 10 yrs | 1.5 mg/kg | 0.3 l/kg |

* Dose = calculated dose required to achieve a 30 minute post-infusion level of 4-5 mcg/ml.

Using these guidelines, however, only 54% of the 60 pediatric patients studied would have obtained peak concentrations of 4 - 6 mcg/ml. None would have obtained peak concentrations > 8 mcg/ml, but 40% would have obtain peak concentrations < 4 mcg/ml. These results demonstrate the need for therapeutic monitoring of aminoglycosides in the pediatric population.

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# Pemphigus Vulgaris in adolescence ; scope and challenges in management .

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## INTRODUCTION

Pemphigus Vulgaris is a potentially life threatening, auto immune mucocutaneous blistering disorder which affects patients between 50 – 60 years of age . Management of the disease is by various kinds of immunosuppressants and is usually lifelong. Treatment is individualized weighing the risks and benefits of the many types of immunosuppressive drugs. This article focuses on the scope and challenges involved in the management of the unusual presentation of this disease in an adolescent girl .

## OBJECTIVE

The goal of management in Pemphigus vulgaris is to induce and maintain remission with the lowest possible doses of medication so as to minimize the risk of serious and potentially fatal side effects .A review of literature for the recent advances in management of the disease to provide the best outcome for this patient was the objective .

## METHOD

A systematic search for best evidence and management guidelines was performed. The treatment options based on benefits , risks , availability and cost was discussed with the patient and family. Patient was started on a conventional course of oral corticosteroids with azothioprine .

## RESULTS AND DISCUSSION

Oral and cutaneous lesions healed well but patient started to develop cushingoid features. Recent evidence suggests management of Pemphigus with novel emerging therapies based on molecular mechanisms , such as Intravenous Immunoglobulin ( IVIg) and TNF- a antagonists ( infliximab and etanercept) to minimize potentially serious adverse effects of the long term administration of corticosteroids.

## CONCLUSION

Long term corticosteroid therapy ,conventional immunosuppressive and anti-inflammatory therapies carry significant morbidity in the management of Pemphigus vulgaris Though many novel therapies appear promising, cost availability and lack of randomized controlled trials to establish their efficacy and safety is lacking.

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# Hepatic Imaging – Role of contrast enhanced MR in Focal Hepatic Masses.

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## ABSTRACT

## INTRODUCTION

Contrast enhanced MRI is extremely useful in abdominal hepatic imaging for obtaining accurate diagnosis of focal hepatic masses. Technical advances in MR hardware and software have allowed introduction of faster pulse sequences and obviated motion related artifacts.

## OBJECTIVE

The present prospective diagnostic study was done to evaluate and characterize focal hepatic mass lesions using contrast enhanced MR imaging. The aim of the study was to differentiate between benign and malignant hepatic lesions and further characterize these accurately on the basis of their patterns of enhancement.

## METHODOLOGY

The study was conducted in the Department of Radiology and consisted of 52 patients referred from the clinical departments for suspected hepatic pathology or those who were detected as focal hepatic masses on previous ultrasonography. All patients underwent contrast enhanced Dynamic MR imaging. Delayed images were also obtained. Pathological and Surgical correlation could be obtained in 46 patient and a statistical correlation was done to categorize the diagnostic accuracy of contrast enhanced MR in hepatic imaging.

## DISCUSSION

The tissue characterization achieved by MR as well as the uptake of contrast by the lesions enable differentiation of benign and malignant masses and characterization of focal hepatic lesions with a high degree of sensitivity and specificity. The diagnostic accuracy of contrast MR is almost similar to hat of histopathology.

## RESULTS & DISCUSSION

Dynamic contrast enhanced MRI detected benign and malignant hepatic lesions with 96% sensitively, 92% specificity and a diagnostic accuracy of 95%. Tissue characterization of lesions was very well obtained enabling higher confidence in differentiating lesions and accurately diagnosing them. We could differentiate primary hepatocellular tumors from metastatic tumors and also successfully diagnose benign masses like adenomas, hemangiomas and focal nodular hyperplasia.

## CONCLUSIONS

Contrast enhanced MR is, here to upstage all current imaging modalities as it is superior to all these in assessment, accurate diagnosis and non-invasive evaluation of focal hepatic mass lesions.

Department of radiology

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# Imaging in Female Infertility

Name of the Author: Dr. Rajul Rastogi

## Abstract:

Infertility is defined as the inability of the couple to achieve conception within 12 months. Approximately 10% of the couples suffer from infertility with nearly equal affection of both sexes.

## Introduction:

There are multiple causes of female infertility that are broadly divided in to uterine, ovarian & tubal causes and are further subdivided into infective / inflammatory, tumoral and congenital categories. Ultrasonography (USG) especially endovaginal USG (EVS) and magnetic resonance imaging (MRI) are probably the best imaging modalities for studying infertile females in addition to hysterosalpingography. However, hysterolaparoscopy (HLA) is still the gold standard as it is not only diagnostic but also a therapeutic technique.

## Objective:

- To assess the relative role of USG and MRI in detecting causes of female infertility
- To compare the relative accuracy of USG and MRI in detecting causes of female infertility using hysterolaparoscopy as a gold standard technique.

## Methodology:

• Twenty-five females presenting with infertility were included in the study. Females with primary amenorrhea were excluded.

• All the patients included in the study underwent transvaginal & transabdominal USG and MRI pelvis on the same day. 3D USG and color / power Doppler study was included in USG examination.

• All the patients who revealed positive imaging and clinical findings were taken for hysterolaparoscopy within one week of imaging.

## Results and Discussion:

• USG & MRI are equally accurate in detecting polycystic ovaries.

• MRI is more accurate than USG in detecting tubal disease and in detecting & determining the extent of pelvic inflammatory disease.

• MRI is parallel in accuracy to HLA in detecting anomalies of tubes, adnexa & ovaries.

• USG and MRI are highly accurate in detecting uterine anomalies and in detecting endometrioma, adenomyosis, endometrial hyperplasia and leiomyoma when compared with HLA.

• The nature of endometrial hyperplasia (hormonal / infective) can be better assessed with HLA.

Conclusion: Both USG and MRI are useful adjuncts to HLA in studying the infertile females. USG is primarily the first line of investigation followed by MRI and HLA.

Yash Hospital & Research Center, Kanth Road, Civil Lines, Moradabad, Uttar Pradesh, India – 244001

# Role of High-Resolution Ultrasonography (HRUS) in Imaging

Dr. Rajul Rastogi

## Abstract:

Ultrasonography (USG) is a very useful imaging modality used to study different systems of the body. When it is used to study the superficial structures of the body using high-frequency transducers, then it is known as high-resolution USG

## Introduction:

High-resolution USG (HRUS) is a useful technique used to study the different parts of the body including eye, salivary glands, thyroid gland, scrotum, breast, joints, etc. Endovaginal USG (EVS) and Transrectal USG (TRUS) are other specialized types of HRUS.

## Objective and Methodology:

Pictorial presentation on the utility of HRUS

Conclusion: HRUS is very useful imaging modality to study different part / systems of the human body.

Yash Hospital & Research Center, Kanth Road, Civil Lines, Moradabad, Uttar Pradesh, India – 244001

# Total Body Irradiation –Technique, Physical and Implementation aspects

**R.Ravichandran, J.P.Binukumar, C.A.Davis, Zakia Al Rahbi, A.M.Zahid, Rajan Balakrishnan**

Total body irradiation (TBI) is used as a preparatory cyto-reductive conditioning regimen prior to bone marrow transplantation (BMT) for the management of various types of leukaemia, malignant lymphoma and aplastic anaemia.TBI is also used in the treatment of systemic malignant spread and bone pain due to metastases. Co-60 gamma rays and 6MV x-rays are commonly used for this purpose. The total body irradiations (TBI) or hemi-body irradiation is a special radiotherapeutic technique that delivers in a patient's whole body an uniform dose within +10% of the prescribed dose. For bone marrow transplants (BMT) the more stringent requisites for TBI treatments are 1) The dose delivery should include skin to 100% dose 2) The dose uniformity in the entire body should be within + 10%. 3) There is need for clinical dosimetry to document the dose delivered to various parts of the body 4) Also there should be method for shielding critical organs such as lungs, kidneys etc. to keep their absorbed doses within permissible limits.

At our centre, the technique followed are Clinac 600 CD linac with gantry at 270o, collimator at 45o provides magna field of diagonal dimension 224 cm at 4.0M FSD. An acrylic beam spoiler screen of 2M x 0.7M x 0.15M dimensions, mounted on mobile stand was fabricated locally. A dedicated treatment table operated by DC motor forms the patient support assembly to be used with the beam spoiler. A dose rate of 100 MU/min in the linac can provide 6.7cGy/min at 4.0M FSD. The prototype beam spoiler along with a self-designed additional flatness filter provided near perfect flat beam with intensities 100.4% (Maxm), 99.4% (Minm) with flatness 100.2+0.5%. Entrance doses at skin is 100% as per specifications. Clinical dosimetry with humanoid phantom measurements showed delivered doses within +5%. With these data we got approval for the radiotherapy technique protocol and taken up the procedure during 2012.

We standardized a method for lung shielding for lateral positioning of the patients. However we found that patient lying supine is comfortable and facilitates provision for eye shielding if necessary. The arms kept in the sides gives good compensates for extra transmission of lungs. For achieving homogeneity, method to use Perspex plates is acceptable. Both semi-conductors and thermoluminescent dosimetry performed for the patients showed the need for correction of skull bone thickness and also showed homogeneity in dose within 5% limits. Our experience is presented.

## Reference:

R.Ravichandran et al. Beam configuration and physical parameters of clinical high energy photon beam for total body irradiation (TBI). Physica Medica 2011,27, 163-68.

Department of Radiation Oncology, Royal Hospital, Muscat, Oman.

# Evidence based medicine in day to day radiology practice.

Maharashtra, India

Dr (Brig) Amarjit Singh, Dr Amit Kharat

## Abstract:

## Introduction

Radiologists come across unusual cases in day to day modality practice. After encountering unusual imaging findings, radiologists need to check literature and perform the right search to achieve final diagnosis. To check literature the radiologists need to place the right questions, describe the lesion while making note of its unique character and contrast enhancement patterns if any.

Evidence based medicine provides the framework to ask the right questions and reach an adequate diagnosis on the basis of the imaging findings. The usual protocol to be followed will include; identifying the problem, searching for answer and covering the knowledge gap by searching the literature and finally assigning the level of evidence against the searched article.

Evidence based radiology is transforming radiology practice. Radiologists often look towards the internet as a basis of learning. The huge availability of the research material though well know medical search indices and journals make approaching information on the web a extremely quick and rewarding exercise.

## Conclusion

The information available is usually precise, updated and revised and helps to fill in the knowledge gap by providing quick and accurate answers. It also helps radiologists to brush their skills and is similar to having an online learning activity.

Dr D Y Patil Hospital and Medical College, Pimpri, Pune-18

# Diagnostic Evaluation of (Pregnant) Patient With Acute Abdominal Pain. The Role of Imaging Modalities.

Naser Malas, JBOG*

Imad Athamneh, JBR**

## Abstract:

### Objective:

Assess the pregnant patient with other causes of pain not related to pregnancy presenting to emergency department, using different imaging modalities and to review the basic principles of radiation safety.

### Material and Methods:

During 18 months, 55 pregnant patients were referred randomly form emergency department for evaluation of abdominal Pain prospectively enrolled into our study. Pregnant with pregnancy-related causes such as premature contractions and other related causes were excluded. US evaluation for all patients including a careful search for gall bladder kidneys, pancreas and appendix related causes. Clinical, surgical, and/or imaging follow-up data were obtained in some patients.

### Result:

Out of 55 patients, 28 (50.90%) were confirmed to have an eight with gall bladder stones (14.54%) five with hydronephrosis related to pregnancy (9.08%), two of renal calculi (3.63%) one had bowel obstruction and pancereatitis (1.81%). Seven with pyelonephrisit (12.72%) , and four with pancereatitis (7.27%).

### Conclusion:

There is an increased incidence of acute abdomen during pregnancy though clinical pictures sometimes get blunted due to gravid uterus.

Early diagnosis followed by surgical intervition if needed decrease morbidity for both mother and fetus also enhances our knowledge of the principles of radiation safety .

Key word: Acute abdomen, pregnancy and ionization.

Consultant in Obstetric&Gynecology

Royal medical services/King Hussein medical centre/Jordan

# Ultrasound in Medical Education: Feasibility and Role in Internal Medicine Residency Training

## Background

New standards of care recommend ultrasound (U/S) guidance for thoracentesis and central line placement; however these skills are routinely taught in medical school or Internal Medicine residencies.

## Summary of Work

We developed and implemented training workshops using didactic lectures and a simulation setting to train Internal Medicine interns on the use of U/S. Sixty-five interns completed surveys, image identifications, and skills tests. Image identification included U/S images of pleural effusions, ascites, renal parenchyma, and the thyroid. Skills tests involved identification of the internal jugular vein (IJV), appropriate gain/depth, and demonstration of compressibility of the IJV. Identification numbers were assigned to all participants and allowed for direct pre- and post-intervention comparisons.

## Summary of Results

Following the workshop, identification of air improved from 32% to 98%; fluid improved from 72% to 100%; ascites improved from 10% to 58%; the kidney improved from 43% to 97%; the thyroid improved from 31% to 97%, and pleural effusion improved from 6% to 69%. The number of participants able to set gain improved from 42% to 94% and depth from 30% to 88%. The number of participants able to locate the IJV and demonstrate compressibility improved from 61% to 94%. The number of those who obtained an image in under 2 minutes rose from 64% to 88%; mean procedure time in this group decreased from 73 (SD 27) to 50 (SD 27) seconds. $P<0.001$ for all comparisons.

## Conclusions

Ultrasound is extremely useful for augmented physical examination and guided procedures to Internal Medicine residents. Carefully structured workshops with hands on component can improve residents' knowledge and skills in the use of U/S, and may lead to improved procedural outcomes and enhanced patient safety.

# SESSION 10

## IMSACON 2012

# Anesthesia for bronchoscopy for neglected foreign body in a mentally challenged child

**Dr. Soumya. MD (Anesthesia)**

## ABSTRACT

Foreign bodies in the tracheobronchial region in children show up with varied clinical presentations. Here we discuss about a neglected foreign body in a 12 year old mentally challenged child who came to us with history of recurrent chest infections, was taken up for diagnostic bronchoscopy. Outcome of the procedure was the extraction of foreign body in the left apical bronchiole. We hereby compile the anesthetic challenges faced in the form of lack of explicit history, clinically compromised patient, prolonged surgery, and unusual site and location of foreign body.

Department of Anesthesia, Rajarajeswari Medical College and Hospital, Kambipura, Mysore Road, Bangalore – 560061

# Accelerated Osteogenic Orthodontics (AOO) A Boon Or Bane? – A case report.


## Dr Ravindranath Mambakkam jagannathan

## Ph.D scholar.



## Abstract:

Accelerated Osteogenic Orthodontics (AOO) – is a relatively new treatment in the orthodontic realm. It promises to radically shorten your time in braces with a dental surgical procedure. This technique has roots in orthopedics, dating back to the early 1900s. Only recently was it modified to assist in straightening teeth and fix bites. This case report will help you understand what AOO is, how it is done, and the pros and cons of the procedure. As such, this concept has potential for accelerating tooth movement and reducing the treatment time frame for both the patient and orthodontist.


## Conclusion:

Accelerated Osteogenic Orthodontics (AOO) facilitated orthodontics was three times faster than conventional orthodontics and outcome was more stable during retention.


Orthodontics Department

Rajah Muthiah Dental College, Annamalai University.

Annamalai nagar., India.


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# Prostate Cancer Screening with PSA: Are we there?

Prostate Specific Antigen (PSA) is a serine protease, which has been used extensively in clinical practice since 1988. It is the most well known member of the kallikrein family which is the largest contiguous group of proteases in the human genome clustered in a 300-kb region on chromosome 19q13.4. In practice, PSA has been used extensively for diagnosis of prostate cancer. PSA levels are also used after initial treatments for monitoring disease recurrence and for evaluating response to cancer treatments.

Despite its use for cancer diagnosis since 1988, the value of PSA as a screening test remains mired in controversy as no study has demonstrated an impact of PSA screening in decreasing prostate cancer specific mortality. This has led to a variety of conflicting recommendations offered for using PSA use as a screening test.

For example, at present, the American Cancer Society and American Urological Association recommend offering annual PSA testing and digital rectal examination beginning at age 50 years for men with normal risk prostate cancer and earlier in men with a heightened risk (positive family history; African American ancestry). The National Comprehensive Cancer Network recommends a risk based algorithm for using PSA and the US Preventive Services Task Force recently concluded against using PSA as a screening test for preventing prostate cancer.

Results from two large randomized clinical trials that evaluated PSA as a screening test were initially published in 2009. The PLCO trial [1] performed exclusively in US males between 50 and 74 years of age randomized 76,693 men between 1993 and 2001 either for annual screening using PSA and digital rectal examination (38,343 subjects) or "usual care" (38,350 subjects) with the primary endpoint of measuring cause specific mortality. Trials results after a follow up of 7 years were recently published. Of note, nearly 40% subjects in the control arm undergoing "usual care" ended up getting a routine PSA test following the recommendations during this period suggested by some of the published practice guidelines.

After a further follow up of the original results survival benefit has been now updated in 2011 and was not found to be significantly reduced from patients undergoing usual care.

In the second trial, the European Randomized Study for reducing Prostate Cancer (ERSPC) [2] performed in 162,387 European males (core group of 50 to 69 years of age; 72,890 men in the screening group and 89,353 in the control group) had an endpoint of reducing mortality from prostate cancer in PSA screened patients by 25%. After an initial follow up period of 8.8 years in the screening group and 9.0 years in the control group, 5,990 prostate caners were detected with PSA screening compared to 4,307 in the control group while 214 prostate caner deaths occurred in the screening group compared to 326 cancer deaths in the control group. The rates of death in the two groups were observed to diverge after 7 to 8 years and the trend continued with prolonged follow up. In an intention to screen analysis the absolute difference between screening and control groups was 0.71 prostate cancer deaths per 1000 men or in other words, to prevent one prostate cancer death 1,410 men will need to be screened during a 9-year period. Additionally the authors noted, 48 prostate cancer patients would need to be treated to prevent one death from prostate cancer. The authors concluded that PSA screening does reduce prostate cancer specific mortality, but at a cost of over-diagnosis and overtreatment. These results have since been updated in 2011.

This presentation will summarize the on-going controversies of screening for prostate cancer based on published evidence.

## References:


1. Andriole, G.L., et al., Mortality results from a randomized prostate-cancer screening trial. N Engl J Med, 2009. 360(13): p. 1310-9.

2. Schroder, F.H., et al., Screening and prostate-cancer mortality in a randomized European study. N Engl J Med, 2009. 360(13): p. 1320-8.

# SESSION 11

IMSACON 2012

# Intraventricular conduction defect in Hypertensive patient

**Dr. V. Padma*, Dr. N.N. Anand*, Dr. S.M. Rajendran****

**Introduction** Hypertension is one of the leading cases of morbidity and mortality in the World. It is one the common disease easily detectable, easily treatable and causes complications like chronic kidney disease, heart failure and stroke,if not treated. Electrocardiogram is one of the tests recommended by 7th Joint National Committee of hypertension for initial evaluation of hypertensive patients.

Hypertension causes an increase in left ventricular mass and fibrous tissue resulting in increased stiffness of left ventricle, causing reduced coronary reserve, abnormal electrophysiological properties of hypertrophied myocytes and conduction disturbances and silent myocardial ischemia.

Electrocardiogram is least expensive cost effective way to diagnose not only myocardial infarction and ischemia but also conduction disturbances and left ventricular hypertrophy.

Dr.V.Padma,Dr.N.N.Anand-Associate professor of medicine

Dr.S.M.Rajendran-Professor of medicine.

SreeBalaji Medical College,Chrompet,Chennai,TamilNadu,India.

## AIM OF THE STUDY

To study the prevalence of intraventricular conduction disturbance in patients with systemic hypertension.

To identify the most common type of intraventicular conduction disturbance.

To identify the prevalence of electrocardiographic evidence of left ventricular hypertrophy with or without strain in patients with systemic hypertension.

## MATERIAL AND METHODS 520

Patients attending Hypertension clinic at SreeBalaji Medical College & Hospital from 2010 January to 2012 January were included in the study.

Patients with constant elevation of Blood Pressure (Systolic / Diastolic) over a period of three weeks were taken from Electrocardiogram and Echo Cardiogram analysis.

**Exclusion criteria** Patients with Ischemic Heart Disease, Diabetes Mellitus, associated dyslipidemia, hyperuricemia and other secondary causes of hypertension were excluded from the study.

**Method** A detailed history and a clinical examination was done in all patients. Average of two blood pressure readings recorded five minutes apart in sitting position at two visits separated by one week. Blood Pressure was measured in both upper limb in supine, sitting, standing positions and also in both lower limbs.

Routine hemogram, urinalysis blood urea, sugar, serum creatinine uric acid , electrolytes and lipid profile were done. Chest xray PA view, echo cardiogram were taken for the patients.

## RESULTS:

The incidence of conduction defects in male was 6.54% and in female was 4.03% among all hypertensive's enrolled in our study. Of the patients with conduction disturbances 41.82% were between 45.54 years of age.

6.73% were above 50 years of age and 3.85% were below 50 years of age.

The increased incidence of conduction defects in older patients is due to age related degeneration of conduction system in addition to subendocardial fibrosis due to hypertensive heart disease.

35 patients of 64 hypertensive patients had a diastolic BP 110 mm Hg. LVH increases with increasing blood pressures both systolic and diastolic as demonstrated in studies12.

Of the 64 patients with LVH, 9 had LAFB and 2

had RBBB.

Among patients with conduction disturbances, 60% had a diastolic BP  100 and 40% had a diastolic BP < 100 suggesting high diastolic pressure could contribute to conduction disturbances seen in hypertensive patients.

The incidence of LVH in female hypertensive was 7.31% and in male hypertensive was 4.73%. Studies on hypertension have shown increased incidence of LVH in females8, 9, 10.

The incidence of LVH was 6.73% in patients more than 50 years and 4.91% in patients less than 50 years. Simone et al stated in his study that prevalence of LVH rises as age increases11.

## Discussion

It is well evident that intraventricular conduction and left ventricular hypertrophy form one of the main ECG changes in hypertension. The Framingham study has shown that the evidence of LVH and conduction disturbance is higher among hypertensive patients.

Franz H Messerlt et al stated that increased incidence of conduction disturbance in hypertensives is probably due to increased fibrous tissue or altered collagen content4.

Martin et al have demonstrated that conduction disturbances develop in hypertrophied ventricles in the presence of myocardial ischemia5 and ischemia occursinspite of normal coronaries.

Gold man suggested that left axis deviation in left ventricular hypertrophy and involvement of conduction from pathway in hypertension is due to subendocardial fibrosis of anterior fascicle of the left bundle and not due to hypertrophied mass6.

Gopinath et al, in their three year follow up study of hypertensive patients in Delhi recorded ECG's of 1417 patients out of which 237 patients (16.7%) had LVH and 100 patients (7.8%) had intraventricular conduction disturbances7.

In our study intaventricular conduction disturbances in hypertensive patients was 9.6%. Of them 39 patients had LAFB, 7 had LBBB, and 4 had RBBB. The incidence of conduction disturbance was more in men

Right bundle and anterior fascicle of left bundle are long thread like structures. The anterior fascicle of left bundle passes below aortic valve in left ventricular out flow tract and receives blood from only one vessel, left anterior descending coronary artery. The main left bundle divides closer to its origin than the right bundle, hence is affected more than right bundle.

In hypertensive heart disease left anterior fascicle and right bundle are affected which is confirmed by our study.

Left posterior fascicle is not affected as the compactness of its position makes it least vulnerable segment to any injury Left Posterior Fascicular Block was not observed in our study population.

High diastolic blood pressure was associated with more conduction disturbances.

Longer duration of hypertension is associated with more conduction disturbances.

## Conclusion

This is a cross sectional study involving hypertensive patients attending HT clinic. Of the conduction disturbances the most common type is LAFB followed by LBBB and RBBB.

9.6% of hypertensive's had conduction disturbances. High diastolic blood pressure and longer duration of hypertension was associated with more conduction disturbances.

Aronow WS stated that ECG is very useful in diagnosis of Left Ventricular Hypertrophy but is less sensitive and specific than echo cardiogrphy. Left Ventricular Hypertrophy is associated with increased cardio vascular events in elderly.

Female hypertensive's  and older hypertensive had more incidence of LVH.

Early diagnosis and treatment of hypertension would prevent concentric LVH and conduction disturbances associated with hypertension.

# Sleep issues in the Intensive Care Unit

**Knnan Ramar, D**

## Abstract

Sleep disruptions and derangements commonly encountered in intensive care unit (ICU) patients may lead to increased morbidity and possibly increased mortality. This interactive session highlights the clinical implications of sleep disruptions in ICU, including factors leading to delirium, and helps the participant to identify various factors including noise, ICU medications, mechanical ventilators and patient care related activities that contribute to poor sleep quality. Participants are also guided through interventions to improve sleep quality in critically ill patients.

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Sleep quality is affected in the ICU with increased arousals and awakenings

Though the total sleep time over a 24-hour period may occasionally be normal, the sleep-wake cycle is severely fragmented with more than half of the sleep occurring during the day and the other half at night

Sleep architecture is altered in the ICU with an increase in stage N1 and decrease in stage N2 and REM

Altered circadian rhythm

Recording of sleep using polysomnogram is very difficult

Noise and patient care related activities contribute to about 30% of the factors that affect sleep in the ICU. The other determinants include medications, delirium, sepsis, pain, and mechanical ventilation.

Further studies and research opportunities exist in this area of medicine.

# PREVENTION OF RECURRENCE OF ASTHMA SYMPTOMS AND WHEEZING IN CHILDREN BY\ LIFESTYLE MODIFICATION

Dr. C.V. Krishnankutty, MD

## Introduction:

A study in rabbits showed that repeated small volume milk aspirations cause persistent airway inflammation and was associated with greater airway reactivity. Studies show that pulmonary aspiration was very common in children giving rise to recurrent respiratory manifestations like cough, wheezing and asthma. Aspiration from gastroesophageal reflux or direct aspiration from oral liquids can also cause wheezing.

## Objective:

To determine whether prevention of aspiration (direct as well as aspiration due to GERD) by lifestyle modification could prevent recurrence of asthma symptoms and wheezing in children.

## Methodology:

106 consecutive paediatric patients attending the asthma clinic of the PVS Hospital were enrolled in the study group. 50 paediatric patients attending the asthma clinic of Kozhikode medical college formed the control group. The study group was subjected to lifestyle modifications (proper feeding practices, correct posture and healthy food habits) whereas, the control group received treatment with inhaled corticosteroid and leukotriene inhibitors. Both groups were followed up and compared at 2 weeks, 4 weeks, 8 weeks and 12 weeks.

## Results & Discussion:

In the study group all clinical parameters (cough, breathlessness and rhonchi) showed significant improvement as early as 2 weeks. By 12 weeks, more than 80% were symptom-free in the study group (% with persistent features; cough 19% v/s 36 %, p= 0.01; breathlessness 3% v/s 18 %, p=0.0009 and rhonchi 17% v/s 34%, p=0.01 in the cases and controls respectively) with statistical significance.

## Conclusions:

Asthma symptoms and wheezing in majority of children could be prevented by lifestyle modifications. Use of inhalers and leukotriene inhibitors could be avoided in them.

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# PSYCHOLOGICAL STRESS A RISK FACTOR FOR PERIODONTAL DISEASE- A MYTH OR REALITY?


## Dr. Little Mahendra

Lecturer

Rajah Muthiah Dental College, Annamalai University, India



Objectives: Several studies have shown significant associations between stress factors and periodontal disease. Although Police work is been ranked among the top five most stressful occupations, periodontitis and its relationship with psychological stress have never been explored. The aim of this study was to evaluate the association between Stress, Serum Cortisol level and Chronic Periodontitis in Police personnel of Cuddalore District, Tamilnadu, India.

Methods : In this study, 110 police personnel were grouped into Test (Group one and Group two) and Controls depending on their probing pocket depth. Control group (Probing pocket depth  3 mm, n = 30), Test group one (at least four sites with Probing pocket depth > 4mm and 6 mm, n = 40) and Test group two (at least four sites with Probing pocket depth > 6 mm, n = 40). The Clinical parameters such as Silness Löe plaque index (PI), Sulcus Bleeding Index (SBI) and Clinical attachment level were recorded. Stress was measured using Occupational stress index (OSI). Blood sample was collected and serum cortisol level was determined using Enzyme-linked immunosorbant assay (ELISA).

**Results:** The mean plaque score and sulcus bleeding index score were found to be significantly higher in test groups when compared to control group (< 0.001). The mean clinical attachment level, occupational stress index score and serum cortisol level were found to be significantly higher in test groups when compared to control group (< 0.001). Pearson's Correlation showed positive relation between clinical attachment level, occupational stress index score and serum cortisol level in the test groups whereas in controls, it was not significant.

Conclusion: These results suggest that the stress can be a risk factor for periodontitis, on one hand in stress the person's oral hygiene habits are altered causing accumulation of plaque and on the other it reduces the immunity of person through its endocrinal connections.

# Thyroid Hormone Replacement – Tips and Tricks

**Sumit Bhagra, MBBS**

Abstract: Hypothyroidism is one of the most common endocrine disorders worldwide; yet, its clinical diagnosis remains challenging due to absence of symptoms or presence of subtle symptoms that overlap with manifestations of other diseases. This presentation will provide an evidence based review of the following issues in a clinical context (1) How to diagnose hypothyroidism? (2) How to manage hypothyroidism? (3) Who to treat and who not to treat? (4) Is there a difference between brand name and generic thyroid hormone preparations? (5) How to choose between T4 and T4+T3 combination regimens? (6) What are the guidelines for treating hypothyroidism in pregnancy (7) What are the guidelines for treating geriatric patients with hypothyroidism? (8) How to manage the patient with a persistently elevated TSH despite replacement?

Name of Institution: Mayo Clinic Health System, 1000 First Dr NW, Austin, MN 55912, USA


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