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INTERNATIONAL MEDICAL SCIENCES ACADEMY

April - June 2010

Vol. 23 No. 2

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PRESIDENT WRITES

Dear Fellows and Members

The April – June issue of JIMSA has chosen a topic (Yoga and Medical sciences) which is gaining popularity world over, especially in areas of post cardiac surgery rehabilitation, life style modification. If we look back, our ancient Yogi's and Spiritual leaders have practised Yoga as a habit with all rituals and they have lived a healthy full quota of life. Yoga and Life style modification are the two major factors, if one analyze all these ancient Yogi's.

Yoga originated in India more than 5000 years ago. It is a combination of breathing exercises, physical postures, and meditation that are believed to align the body, mind, and spirit. A famous teacher once said that Yoga is like "snake oil", it's good for whatever ails you. While this may have been said in jest, it offers tantalizing possibilities for the future of healthcare.

Yoga draws you into the present moment, in time and space in which you can truly and fully live. While doing Yoga pose, you experience clarity, focusing your attention, body, and breath toward experiencing that particular pose completely. Repetitions lead to increasing awareness and a mind body harmony that spills over into your daily life.

There is a growing body of research that shows yoga benefits anxiety disorders or stress, asthma, high blood pressure and depression. It improves lung function, lowers cholesterol, boosts immunity, cognition and quality of life.

Yoga therapy is a great service to provide for the more than one reason –there is a tremendous need; it is a preventive medicine par excellence and that this field is about to take off. Generation 20th century is looking for safe, natural, effective therapies to help them deal with disease; with health care costs spiralling out of control, yoga only requires that its students make the initial investment in props and instruction followed by regular practice.

Marrying the antiquity of Yoga with the innovations of modern medicine will improve the quality of life throughout the world. While modern science looks outward for the cause of all ills, the Yogi searches the depth of his own self. How can we lose with such a winning combination?

I am sure this could be cultivated from younger days at the school level which will go a long way in maintaining the health of the nation.

Looking forward to meet you all at our annual conference to be held on 10th and 11th September 2010 at Royal Society of Medicine, London.



K. Jagadeesan

Dr. K. Jagadeesan
President, IMSA

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All fellows and members of IMSA can have access to the site and get information about its objectives, benefits to the fellows/members, chapters and their activities including seminars, refresher courses, rural CMEs etc. and also IMSACON - a regular annual event of international standard; *application form for enrollment as fellow/member can also be downloaded. Fellows - members and even not fellows - members can have access to full text in the quarterly journal - jimsa from July - Sept. 2003 onwards by putting their E-mail address under 'user name' and using the password 'UserJimsa'.*



Dr. P. Narasimha Rao

Ex. President, IMSA World H.Q.

Dr. Pinnamaneni Narasimha Rao International Award

Appeal by President IMSA



Dr. K. Jagadeesan
President, IMSA

Dear Fellows and Members

You are aware late Dr. P. Narasimha Rao, an international figure both in academic and teaching had been the President of this prestigious organization for more than a decade from 1990 to 2002. He was President of Medical Council of India and Vice Chancellor of various Universities. He had to his credit several outstanding contributions to the medical fraternity till his death. He had been in close association with IMSA since its very inception in 1981. The Academy has flourished tremendously during his tenure as President. Keeping in view his status, services rendered to the mankind and on the insistence of senior Fellows, the Academy has established an International Award in his honour named 'Dr. Pinnamaneni Narasimha Rao International Award', on the lines of Dr. B.C. Roy National Award. Substantial funds are needed for this prestigious award. Initially, the family of Dr. P. Narasimha Rao has contributed a fair amount of money and has also assured to contribute more.

I appeal to all our Fellows and Members to contribute generously for this noble cause in the memory of this dedicated acadamecian - Dr. P. Narasimha Rao. A separate account has been opened for this Award.

(K. Jagadeesan)

IMSA Chapter Activities CME Programmes

Tamil Nadu Chapter

11-04-2010: Dr. V. Natarajan, "Evaluative Procedures In Neurological Disorders- Which And When?"

09-05-2010: Dr. Sanjay Prabhu, "Pain Relief"

13-06-2010: Dr. Alex S. Prasad, "Recent Trends In Radiation Oncology"

Election of Fellows and Members

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BUILDING FUND

The President Dr.K.Jagadeesan and the members of board of trustees of IMSA, WHQ, request all the fellows and members of IMSA to contribute at least Rs.5000/- towards building fund for IMSA, WHQ, New Delhi.

Dr. Kamlesh Chopra, Secretary General, IMSA, WHQ

APPEAL

All Fellows/ Members of IMSA are requested to send their email id to IMSA, WHQ.

Dr. Kamlesh Chopra, Secretary General, IMSA, WHQ, New Delhi

ANNOUNCEMENT

Revised IMSA FELLOWSHIP/MEMBERSHIP subscription fee will be Rs. 6000/- for fellowship and Rs. 4000/- for membership, w.e.f. 1st April 2010.

Dr. Kamlesh Chopra, Secretary General, IMSA, WHQ, New Delhi

HONOUR

- Prof. N.S. Neki, FIMSA has been Elected President of Geriatric Society of India for the period 2010-2011.
- Prof. N.S. Neki, FIMSA has been Elected Vice-President of Indian Society of Hypertension for the period 2010-2011.

Congratulations!

IMSACON – 2010 at London, U.K.

IMSA is pleased to inform its Fellows and Members that Annual Conference – IMSACON- 2010 will be held on 10th and 11th September (Friday & Saturday) at Royal Society of Medicine, in London, U.K. Kindly confirm your participation in IMSACON- 2010. For further details please contact:

Dr. Kamlesh Chopra, Secretary General, IMSA, WHQ, New Delhi, E-mail: imsa06@gmail.com

Dr. Raghu Gaiand, Organising Chairmen, IMSACON – 2010, London, U.K., E-mail: raghugaiand@aol.com.



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FROM EDITOR'S DESK

Dear Colleagues,

There is a growing and perhaps justified concern amongst the medical professionals about the public health and economic impact of recent spurt of life style related-diseases. More-over, the adverse effects of drug treatment, especially in prolonged illnesses, also constitute a matter of deep concern. During the last two decades, Yoga, though known for several years in India, has now emerged as a novel therapy, popularly practised not only in our country but also abroad. Yoga training helps in the prevention, control and rehabilitation of some of the common ailments afflicting mankind.

I am extremely grateful to **Dr. Brij Bhushan Aggarwal**, primarily an Endo Surgeon, but has attained expertise in Yoga therapy through intensive training under a world renowned yogic expert. In this issue, Dr. Aggarwal has brilliantly highlighted some of the important facets of this upcoming field of **yoga** in medicine, which will be of immense benefit to the readers of JIMSA. Some of the original articles published in this issue include 'impact of yoga on respiratory diseases'; 'individualized patient education regarding risk factor management of atherosclerosis'; 'improved patient care by enforcing quality assuring practices in tertiary care hospitals. Also published, are a series of interesting care reports by authors belonging to different disciplines of Medicine. An update on **Epigenetics** emphasises the necessity to include this relatively new and exciting field in the epidemiological studies; this will perhaps modify the effects of some of the deleterious genes. In another update, the author has elaborated on the common factors under lying **fracture risk in osteoporosis**- a condition quite prevalent in Indian subjects.

This issue contains an exhaustive and brilliantly described practical approach to the **Evaluation of Male Infertility** in a *special review* contributed by **Dr. S.K.Wangnoo**; I am extremely grateful to him for this useful contribution.

P. D. Gulati

JIMSA BEST PUBLISHED ARTICLE AWARDS -DECLARED

The following articles have been selected for the "Jimsa Best Published Article Awards-2009" as per ranking given below:

- Rank 1. Oxidative Stress in Patient with Different Histopathological Types of Idiopathic Glomerulonephritis.** Nitya Nand, D. Kumar, M. Sharma, R.K. Yadav; JIMSA 2009 Vol.22 No. 4 Pg 197.
- Rank 2. Guidelines for Managing Minor Head Injuries.** Amin Tabish, N.A.Lone, M.A. Wani; Abdus Salam; JIMSA 2009 Vol. 22 No. 2 Pg 81.
- Rank 3. Three Months Comparative Study of Efficacy and Safety of Metformin Plus Glibenclamide Versus Rosiglitazone Plus Glibenclamide in the Treatment of Diabetes Mellitus.** S. Sarkar, K.K. Rao. S. Chatterjee ; JIMSA 2009 Vol. 22 No. 4 Pg 187.

Each award consists of a medal, citation and cash prize: the awardee is required to preferably receive the award at the forthcoming IMSACON 2010 on 10th and 11th September at Royal Society of Medicine, London, U.K. (contact urgently **Dr. Kamlesh Chopra**, Secretary General, IMSA, WHQ, New Delhi). In case he or she is unable to attend IMSACON 2010, he/she should intimate the editor JIMSA, accordingly.

Editor

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Dr. R.R.Thukral
Vice President IMSA World H.Q.

Dr. R.R.Thukral, an eminent ENT Specialist of Delhi, had a distinguished service record in the Army during which period, he commanded various hospitals and handled battle field casualties in 1965. He was recipient of various honours like J&K Operation Medal, Raksha Medal, Sammes Sewa, star of the certificate of meritorious services issued by the Chief of Army staff.

After being discharged from the Army Medical Corporation in May 1970, he has ever since been engaged in private practice. He was the Director of Thukral Hospital in Gurgaon and had honorary attachment to various hospitals in Delhi like ESI, Dr. B.L.Kapoor Memorial, Moolchand and TirathRam Shah Hospitals. Besides these, he was attached to various charitable organisations and was the recipient of Meritorious Community Service award from the Lions Chief.

He had received many honours which included a stint as Honorary ENT Surgeon to the President of India, President of ENT Association of Delhi, Inspector of the Medical Council of India, most Distinguished Student of Andhra Medical College, outstanding achievement and service award by Gwalior Medicos, Best Worker Award by the Delhi Medical Association and Life Time Achievement Award by the Cardiology Society of India which he received from the President of India in 2006.

He had several publications to his credit including a book he authored entitled "*Clinical Methods in ENT*".

Dr. Thukral joined the International Medical Services Academy (IMSA) at the World Headquarters as the first Secretary General and rose to the position of the Vice-Presidentship of the Academy. His contribution to IMSA are insurmountable; he spear headed the efforts to acquire land for the construction of the IMSA Headquarters which materialized only a few day before his sudden and sad demise on June 2nd 2010.

To me he was more of a brother than friend, and we worked in close liason with each other to carry forward the aims and objectives of IMSA.

With his sudden demise the IMSA has become poorer and I have personally lost a brother.

Dr. Sandip Mukerjee
Senior BOT Member,
IMSA, WHQ

Yoga and Medical Sciences

“What is the wisest among the human matters? The art of healing !” - Pythagoras

“The people go and beseech the gods for health and does not know, that they themselves have the power over it.”

-Democrat

Modern medicine is galloping ahead riding the avalanche of technological advances. This march is too dependent upon systems approach, statistical jargon and mathematical interpretation to assimilate the nuances of human body being part of cosmos and craving for a basic healing touch.

Everybody is an individual masterpiece of art being in continuity with the universe and as that interwoven within the breath of existence¹. “Health is a state of complete physical, mental and social well being and not merely the absence disease or infirmity” thus goes the WHO definition of health unchanged since 1948. The health care delivery system continues to address the three components of well being in somewhat disparate ways in insulation. Our knowledge of these is based upon the interpretation of our own state of mind and that there exists no absolute truth. Life is the process of continuous change of states of energy along the exist of time, which itself is considered to pass according to Issac Newton¹.

This subjectivity in our knowledge of human body demands something holistic and objective across the existential spectrum of human observation and experience. While looking towards promise of future we need not turn our back to the wisdom of past. Assimilating input from existential past will surely make our vision more objective and effective. Yoga is seen not only as a set of esoteric exercise but also as a part of oriental culture. It's inherent non-invasiveness and harmlessness emanates from the test of time and voluntary integration. Biofeedback therapy, physiotherapy, psychotherapy and hypnotherapy etc are fragmented approaches to understand issues which have been addressed in totality by yoga for centuries. To the ancient Greeks exercise was linked to practice of medicine. The therapeutic benefits of gymnastics and exercise were propagated by Greek Paidotribe, Herodicus of Selymeria and followers. The first treatise in English on the use if therapeutic exercise was published in 1705 by French Fuller². World's first sports medical institute was established in Dresden in 1911, and first congress of exercise and medicine was held in ovehof in 1912. French society of sports medicine published first medical was journal deviated to sprits medicine in 1922. International federation of sports medicine was than established at the second winter Olympics of St. Moritz in 1928. This marked the evolution of sports medicine from its early beginning in the gymnasia of ancient Greece. This evolution had its share of troubles and insecurities. Reports were already appearing about the adverse effects of exercise and criticizing the dearth of relevant scientific validity². It was a major issue at the meeting in 1873 as reported by the British medical journal. Austin Flint advanced the

conclusion that “the muscular system may consume its own substance by exercise”. Yoga recognizes these concern and is based upon (*yoga's citta-vitti-nirodha*)[chittam = Mindstuff, Vrittis - Thoughts, fluctuations Nirodah - Restriction] Yoga is the cessation of the fluctuations of the mind [Sthira Sukham Asanam (Seated posture should be steady and comfortable)].

Yoga is largely based on the philosophy of Samkhya. Holding that the order so that a person reenters his or her state of purity and consciousness. Generally, the Yoga process involves eight stages.

- 1.) **Yama** (The five “abstentions”); non-vioence, non-lying, non-civetousness, non-sensuality, and non-possessiveness.
- 2.) **Niyama** (The five “observances”); purity, contnetment, austerity, study, and surrender.
- 3.) **Asana**; literally means “seat”,
- 4.) **Pranayama** (“Disciplining breath”); also interpreted as control of the life force.
- 5.) **Pratyahar** (“Astractoin”); Withdrawal of the sence organs from external objects.
- 6.) **Dharana** (“Concentratoin”); Fixing the sense organs from external objects.
- 7.) **Dhyana** (“Meditiation”); Intense contemplation of the nature of the object of meditation.
- 8.) **Samadhi** (“Liberation”); merging consciousness with the object of meditation.

Yoga recognized that life is not matter only, there is something more to it. Modern scientific thought centered on perceptible being is discovering the contraindications in its understanding. Theory of entanglement tells us that quantum mechanical state of any two objects are in communication even when they are separated in space like manner. We have been taught every particle has a similar anti-partial but if that were so then everything would be annihilated and neutralized by everything anti- everything. Professor Wilczek FA of MIT won 2004 Nobel for telling us about the most powerful force of nature (quantum chromodynamics) that turns off as the particles get close to one another and grows with distance. This is a truly gravitational paradox. Healing of human body deals with many scietific paradoxes. One always wondered if the big bang created an anti-universe.

Paracelsus said “He is not a physician who does not know the invisible, which has no name, no matter and yet its effect”. Yoga helps us deal not only with comprehensible paraboxes but also the invisible. Yoga allows us to harmonize the nuances of body, mind and spirit. It allows discovering the self to heal the self by attaining

an absolute equipoise by integrating our building blocks beyond matter and energy. It heals our five-layered existence of which the physical world is grossest (Annamaya). Next to that are the sheaths invisible, Pranayam (breath energy), Manmoya (mind being), Vijnanamaya (intellect, wisdom) and Anandamaya (Bliss, divinity). Yoga has been shown to minimize complication of surgery, improve patient reported outcomes after surgery, reduce analgesic requirements, reduce hospitalization and expedite recovery^{3,4,5}. Prevention is better than cure and yoga is widely recognized as an effective tool in inculcating a healthy lifestyle thus acting as a vaccine against lifestyle related disorders. Apart from preventive and therapeutic, yoga is capable of elevating our abilities. Not only had these set of body disciplining practices help the patient but also the health care worker thus improving his/her efficiency and execution⁶. Even mental disciplining has been shown to improve the performance of surgical procedures⁷. Once again, healthcare is beginning to confront common sense practice that is routine in many other high stake professions” Satava RM⁶. Let us integrate the wisdom of Yoga into medical science. Evidence supports it and I have a strong intuition”

ACKNOWLEDGEMENT

I am perennially indebted with gratitude to Late Swami Dhirendera

Barahmachari Ji who took me as a disciple and trained me in Yoga in the year 1980 for the Diploma in Yoga Course.

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Effects Of Short Term Yoga Training On Pulmonary & Reaction Time In Students Of Rural Medical Institution.

D.A. Biswas

Department of Physiology, J.N.M.C. (Sawangi, Meghe), Wardha. Maharashtra. India

Abstract: The present cross sectional study was conducted on 42 medical students, representing three groups. First group performing only Pranayam (N=12), Second group only yogic Asanas (N=13) & third group only Rajyoga Meditation (N=17). Each subject served as their own control. The training was imparted by experts in evening with 1 hr / session/ day for a total period of 4 wks, after which the pulmonary & reaction time parameters were repeated. The result of pre- post (paired sample) test with ANOVA revealed that significant reduction in auditory reaction time (ART) & visual reaction time (VRT) occurs in subject practicing yoga in all groups. The mean post EFV1 increased in both Pranayam & Asana group & post ratio of FEV1/FVC% showed a decrease in all the three groups. **Conclusion :** The significant decrease in reaction time shows that regular practice of yoga will increase the attention & concentration ability of students.

INTRODUCTION

The need of the hour is holistic health. Health as defined by WHO encompasses not only physical but also mental & social well being. The paradigm has now shifted from curative to preventive measures. Anand¹ has stated that "The ultimate aim of medical sciences is the attainment of optimum physical & mental health for the individual. The ultimate aim of yogic practices is also same namely - physical & mental well being." Yoga therapy is a relatively novel and its emerging clinical description falls within the broad category of *mind body medicine*, whose growth is consistent with the burgeoning popularity of yoga in the west and the increasing world wide use of Alternative medicine. Yoga practice, due to its psychophysiological effects, has become an effective primary or adjunct therapeutic intervention. Numerous studies are available on yogic asanas & pranayam, but comparatively few on Rajyoga meditation. Rajyoga, which is the ancient yoga of India, had gone into oblivion in the recent past, and is now once again being revived experiencing its wonderful healing result of body and mind. It subsumes within itself the fundamentals of all methods of yoga and confers the achievement of all of them naturally and easily, Using one very simple method which anyone can learn.

Classical yoga includes pranayam, yogic asanas & meditation - Pranayam is rhythmic controlled breathing, or a breathing exercise; Asanas are easy & comfortable postural exercises and Rajyoga is a mental exercise.

Yoga training helps in prevention, control and rehabilitation of many respiratory diseases; FEV1 & FEV1/FEV% (FEV1) are the most sensitive parameters. Though much work has been done on pulmonary functions but very few studies are available on short term effect (one month) of yoga training on pulmonary and reaction time changes. Hence this study was taken up.

MATERIAL & METHODS

a) Selection of Subjects : A total of 120 1st year medical students were selected for the study. Three groups were made of 40 each by random selection. 1st group performing only 'pranayam', 2nd group only 'asanas' & 3rd group only 'Rajyoga meditation'. Permission from Institutional ethical committee was obtained, before the start of the study. The details of the study was explained to the subjects; their signed informed consent was taken, They were assessed, using a pre-designed questionnaire before the onset of the study.

However, as the subjects participated in the institutional co-curricular activities, we could get post exercise data of only a few of them; hence the sample size become less. Post data of 'Pranayam group'

was 12, Meditation group was 17 & Asana was 13. Hence, statistical analysis of only 42 subjects could be done.

b) Design of study: Each subject served as their own control. Detailed history was taken to rule out smoking or other chronic diseases; physical characteristics such as age, height and weight were record training was given by 3 separate yoga experts. i) Pranayam or breathing exercise included *Saral & Kapalbhati*. ii) Yoga Asanas which are simple postural *Tadasana, Utanasan, Pawanmukth asanas, Vajrasana, Bhujangasana, Shalabhasan, Makrasan & Shavasana*. iii) Rajyoga which is a mental exercise, is done in 4 steps namely - initiation, meditation, concentration & realization.

c) Parameters studied: The ventilatory function tests include FEV1 & FEV1/FVC%. The study was carried out with RMS Medspiror. The subject was asked to take a deep breath till the lungs were apparently fully inflated; the subject was then told to blow into the spirometer as forcibly as possible followed by inspiration. The reaction time namely 'visual reaction time' (VRT) and auditory visual reaction time (ART), was found out using response analyzer of Yantra Shilpa make; average of 3 readings was taken as the final reading.

All parameters were recorded prior to start of training and at the end of 4 weeks course. The students were called to the department of physiology for yoga training at 5.00 p.m. every day.

At the end of 4 weeks course, subject wise reactions of volunteers/ subjects to the training were also assessed by a questionnaire. Statistical analysis of data was done was by pared 't' test & ANOVA.

RESULTS

Demographic data - Amongst 42 subjects, there were 12 in 'pranayam' group; 17 in 'meditation' and 13 in 'asnas' group

Anthropometric parameters are summarized in table1 showing a mean age of 18 years, height 165 cms & weight 62 kgs when both males (n=30) and females (n=12) are compared.

Comparing the pre and post values of all the parameters; in the **Pranayam group**, mean VRT pre values of 200 declined to 193 post value; this was statistically significant (P<0.01). The ART value also significantly changed (P<0.05); FEV1 increased from 113 to 118.

In the **Meditation group**, VRT declined significantly (P<0.01) FEV1 also decreased from 108 to 106 Table 2 shows a statistically significant change of VRT (P<0.05). In **Asana group**, the ART value was not statistically significant, mean decrease was from 184 to 170, FEV1 also increased from 112 to 116. (Table 3)

DISCUSSION

The anthropometric values in males and female of the 3 group were comparable. In the 'Pranayam group', FEV1 increased from 113 to

Table 1: Pranayam – Paired sample statistic & test

Parameter	Mean	S.Error Mean	t	Sig(2 tailed)
FEV1 & Post	113 118	5.7 6.1		
Pair test	-4.1	4.0	-1.0	.331
FEV1 & Post	109 107	2.5 2.9		
Pair test	1.8	2.1	.87	.402
ART & Post	167 156	8.0 7.4		
Pair test	10.4	3.9	2.5	.025*
VRT & Post	200 193	7.0 7.9		
Pair test	6.9	2.1	3.2	.008**

Table 2: Meditation - Paired sample statistic & test

Parameter	Mean	S.Error Mean	t	Sig(2 tailed)
FEV1 & Post	108 106	5.9 5.0		
Pair test	2.3	4.0	.543	.610
%FEV1 & Post	108 106	1.0 3.2		
Pair test	2.3	2.7	.863	.428
ART & Post	173 157	6.1 5.8		
Pair test	15.9	7.9	2.00	.063
VRT & Post	206 186	3.3 3.4		
Pair test	20.5	4.2	4.8	.000**

118 2, probably due to efficient use of abdomen and diaphragm muscles. In the 'Meditation group' FEV1 decreased from 108 to 106 only it works by causing mental relaxation. In the 'Asana group', FEV1 increased from 112 to 116, which could be due to efficient use of abdominal wall which helps in moving diaphragm better, than by helping, the lungs to empty efficiently. These findings are in line with work of many investigators^{2,4,5}. Visual and auditory reaction time showed a significant increase in all the 3 groups³, except ART in the Asana group. This finding is consistent with the findings of other

Table 3: Asanas - Paired sample statistic & test

Parameter	Mean	S.Error Mean	t	Sig(2 tailed)
FEV1 & Post	112 116	10.7	9.4	
Pair test	-3.8	1.8	-2.0	.071
%FEV1 & Post	111 107	2.2 2.8		
Pair test	4.7	2.7	1.7	.123
ART & Post	184 170	16.1 10.6		
Pair test	14.3	8.3	1.7	.113
VRT & Post	205 191	7.0 9.6		
Pair test	13.9	5.1	2.7	.019*

workers^{6,7}.

It is known that the effect on reaction time by the reticular formation is primarily upon "central integrative time" (C.I.T.) Quick reaction time in young adults, was possibly be due to fast C.I.T. caused by relatively more experiences in young adults as compared to children and older age group. As seen from table 1, 2, & 3 the VRT is possibly more, because of a longer reflex pathway than the auditory pathway. Yogic exercise involves physical, mental and spiritual task in a comprehensive manner. It brings about the behavioral changes. Yoga of long duration affects the hypothalamus, which leads to reduction in sympathetic tone and peripheral resistance⁸. With regard to the central nervous system as seen by 'effective reaction time', the RR(Relaxation Response) activates areas in the brain responsible for emotion, attention, motivation and memory(eg. anterior cingulate, hippocampal formation, amygdala) and may also control the autonomic nervous system^{9,10}.

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- (x) Statement signed by all authors regarding adherence to Standard ethical guidelines prescribed by ICMR 2000. (page 85)

Reduction of Risk Factors following Lifestyle Modification Programme in Patients with Coronary Heart Disease

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Abstract: This study was conducted to the effect of a teaching program on patients with myocardial infarction by modification of risk factors or behavior changes: 100 patients out of those who admitted to the CCU ward of Shahyd Madani Heart Hospital from January to September, 2004 were assigned to a teaching group and 50 to a control group. An individualized teaching program was delivered to the teaching group during the hospitalization period. It covered aspects such as: the characteristics of heart disease, the anatomy and risk factors of atherosclerosis, diet and exercises therapy. After discharge they received educational package for 6 month. The lifestyle and risk factors of patients as smoking, blood pressure, pulse, blood lipid profile, BMI waist hip ratio (WHR) were measured before and after the teaching program. **Result:** Initially, there was no significant difference in the number of non-smokers. After post testing the result revealed that the number of non smokers had significantly increased in teaching group from 66% to 90.1%. The number of patients who exercise, significantly increase after teaching program from 30% to 88%, while no significant change was shown by the control. The result showed that WHR of case group before education was in abnormal range (1.01) compared with control group (0.99), while after education the WHR reduced in case group (0.98), this difference in WHR was found to be statistically significant the above finding suggest that the individualized teaching program can be helpful in reducing the risk factors of atherosclerosis in patients with myocardial infarction.

INTRODUCTION

Economic growth in Iran has brought about marked change in lifestyle and in patterns of health and disease. The lifestyle of Iranians has become more sedentary and consumption of healthy food such as vegetarian food has decreased while the consumption of animal fats has increased. Regarding health status, morbidity and mortality from coronary Heart Disease (CHD) rapidly increase and Myocardial Infarction (MI) have now become one of the leading causes of death and their prevalence continues to rise with the extension of life span¹. To prevent the onset and recurrence of myocardial infarction, the most important thing is to control the risk factors of atherosclerosis, the main cause of MI. Various lifestyle factors such as, smoking, lack of exercise and inappropriate diet are the risk factors of atherosclerosis. Physiological factors such as, obesity, high Serum lipid level (cholesterol, triglyceride, HDL cholesterol and LDL cholesterol) and high blood pressure are also known as risk factors². Although risk factors have a significant impact on the life of patients with cardiovascular disease, considerable knowledge is required to effect unless lifestyle changes are made. Most patients however, don't achieve satisfactory lifestyle modification due to a lack of knowledge about the characteristics and management of the disease and lack of family support³. Therefore, the more effective the teaching the better the effect of education is expected to be⁴. We conducted this study to find more effective ways of reducing the atherosclerosis risk factors in patients with MI, and examined the effectiveness of a teaching program

MATERIALS AND METHODS

Research design: A randomized comparison group of pre post test

experiment design was used to the effectiveness of an individualized teaching program on the reduction of CHD risk factors in patients with MI. The independent variable was the individualized teaching program and the dependent variables were the CHD risk factors as smoking, exercise, blood lipid profile, BP, and WHR.

Subjects: Subjects for this study were patients hospitalized in C.C.U ward in Shahyd Madani Heart Hospital from January 2004 to September 2004. 100 Patients participated in the study, of these 50 patients in teaching group and 50 patients in control group.

Method: Only routine care (verbal instruction) was given to the control group, while an individualized teaching program was given to the teaching group when the patients were in stable condition. Information was given verbally in a structured way using a booklet developed by the researchers. It contained five using areas that are routinely addressed in cardiac rehabilitation program: Nature of disease, risk factors and their modification, diet and exercise. Teaching was provided to the teaching group during the admission period by the researcher when the patients were ready to discharge to their homes. These subjects received an educational package about modification of lifestyle.

Statistical analysis: Data were analyzed using the SPSS program. Descriptive statistics, chi-square analysis was performed to compare demographic characteristics and differences in number of patients with CHD risk factors for the teaching and control groups. Paired t-test was used to test change in the patients blood lipid profile within and between the teaching and control groups.

RESULTS

Demographic characteristics of the patients were for age and family income. There was no significant difference between the control and teaching group for any of the demographic characteristics of patients,

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Mean age of cases was 50.20+ 9.35 and control 52.86+ 8.24 age variable were matched for the cases and control. Approximately 90% were males, 84% belonged to middle and lower socioeconomic status, **CHD risk** 26% of the cases and 70% of controls experienced MI during morning hours i.e. 0-12 AM.

Smoking: Initially there was no significant difference in the number of non-smokers in the teaching and control group. After intervention (teaching), post testing revealed that the number of non-smokers had significantly increase in the teaching group from 30% to 88% in teaching group ($p < 0.05$), CI 3% .,18-0.45 vs CI 0.78-0.97), while no significant change was seen in the control group (Table).

Waist-hip ratio (WHR): Mean WHR of case group before education was compared with control group (0.99), while intervention the mean WHR reduced in case group to (0.98), this differences in WHR was found to be statistically significant

Diabetic Status: Initially the average of FBS (Fasting blood sugar) in case group 128.1 while after 9 mont intervention (modification of lifestyle in patients) the average of FBS decrease to 115.8 as compared with control group, in control the average of FBS did not decrease. This difference in average of FBS in case group was found to be statistically significant ($p < 0.05$).

Lipid profile: After modification of risk factors in patients ,the mean total cholesterol was significantly lower in the case group than in the control group. The mean HDL-C level increase in both group; however, no significant difference between before and after intervention was gained, At baseline there was no significant differences in the mean of T.G in case and control group, while after intervention the mean level T.G significantly decreased from 255.7 to 177.6. This differences in mean T.G case group was found to statistically significant ($p < 0.05$) As demonstrated in table 3, in spite of a 12 mg/dl and 33mg/dl reduction in LDL level respectively in case and control group, this decline in LDL cholesterol did not gain statistical significance. Similarly, despite an increase in HDL cholesterol from 37.4 mg/dl to 38.9mg/dl in case group, in the control group the level of HDL cholesterol did not increase. However, the increase in HDL cholesterol in case group was not found to be statically significant.

DISCUSSION

To study the effects of risk factors modification by mean of nonpharmacological intervention in patients suffering from CHD, we scrutinized every risk factor separately. Each factor was amenable to modification through intervention at behavior. Behaviorally-oriented interventions incorporating cognitive and behavioral smoking association techniques^{5,6}, showed positive result in reducing smoking rates in MI patients. Elevated serum cholesterol concentration were reduced by intensive dietary modification. Thus major changes in dietary habits can achieved in CHD patients and may even lead to stabilization or regression of coronary atherosclerosis. These favorable effects may not be attributable solely

Table: Distribution of Smoking habit in Iranian CHD patients before and after intervention.

Variable	Before intervention						After intervention					
	Case		Control		CI 95%		Case		Control		CI 95%	
Smoking												
Yes	15	38	0.18-0.44	77	34	0.45-0.71	3	10	0.01-0.18	15	36	0.18-0.44
No	11	46	0.55-0.81	20	40	0.28-0.54	41	86	0.81-0.98	33	66	0.55-0.81
Smoker less than 20												
Yes	8	19	0.28-0.78	15	10	0.21-0.53	5	10	0.01-0.18	13	26	0.63-1
No	7	14	0.21-0.71	24	48	0.46-0.76	3	6	0.09-0.23	3	6	0.06-0.37
Smoker more than 20												
Yes	7	14	0.21-0.82	12	26	0.18-0.48	0	0	-	2	4	-0.64-0.71
No	4	8	0.28-1.04	26	32	0.51-0.81	7	14	0.1	8	8	0.28-1.04

to the adoption of a low-fat diet, because in some intervention additional component were included, such as stress management or exercise training^{7,8}.

Patients educational is an essential component of patients after MI , and has been found to be cost effective in terms of its potential to reduce recidivism and the length of hospitalization⁹. As patients learn by a variety of methods, it is most efficacious to match an individual learning style with an appropriate teaching technique group didactic lass foster a passive type of learning experience and require that the patients be ready to learn at a specific time. Individual teaching requires that a patients be more active during the learning process that the individual be able to choose his or her learning time.

In this study individualized teaching was updated to assist patients to understand the cause of MI, identify risk factors present in their lifestyle and suggest possible modifications or the removal of risk factors identified. We provided information in a structured easily understood way to encourage patients to adopt behavior that will result in improve health status. Our result demonstrate favorable trends in several important areas. Specially a dramatic increase in non-smokers exercise compliance and increase HDL cholesterol.

The number of non-smokers after the program implementation was significantly higher in the teaching group. This finding coincides with the result that intervention improved in the form of individually planned consecutive teaching sessions achieved a reduction in cigarette consumption. However this, conflicts with finding of a previous study which reported that there were no significant difference in smoking cessation between an experimental and a control group¹⁰. We individualized teaching program has a greater value. Since most patients included in the study had a fear of chest pain and heart attack, they didn't want to actively exercise, and had no specific knowledge regarding exercise. We taught how to measure radial pulse to assess the intensity of exercise so that they could exercise with confidence. Subject exercising regularly were significantly increase after the program in teaching group. Almost the same result were reported in several previous studies^{11,12}. It is extremely hard to draw definite conclusion from these result, but it suggest that this teaching program may be helpful and beneficial at reducing the risk factors of atherosclerosis in myocardial infarction patients.

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Status of Quality Assurance Practices in Selected Teaching Hospitals of Kashmir Division

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Abstract: Introduction of organized quality management process in health care sector is fast gaining recognition and thus inviting attention of providers and customers of care through out the world . In order to study the status of quality assurance practices in teaching hospitals of Kashmir division three large hospitals of Srinagar city were selected in order to give representation to different types of teaching hospitals like tertiary care, intermediate care and specialty care. A retrospective study for one year of available records and a three month prospective observational study was conducted for a period of one month in each hospital. The study undertaken showed although there are a few quality assurance committees existing in SKIMS , less are in place at S.M.H.S and L.D hospital. Although existing quality assurance committees have contributed a lot in improving the quality of patient care , the hospitals need to make the existing quality assurance committees more effective and purposeful along with constituting certain other quality assurance committees . Preventive maintenance of equipment to reduce downtime , standardization of procedures , internal and external quality control should be a regular feature . Separate department of quality assurance under hospital administration needs to be incorporated in hospitals to implement the quality of care.

INTRODUCTION

Quality is an important aspect of health care; indeed for most people it is the most important aspect. The concern for quality in healthcare is as old as care itself. Quality is defined in the dictionary as “degree of excellence” or “superiority in kind.”¹ Joint commission on accreditation of health care organizations has defined quality of patient care as “ the degree to which the patient care services increase the probability of desired outcomes and reduce the probability of undesired outcomes given the current state of knowledge. Thus the main purpose of quality implementation programme in health care is to meet or exceed the needs of both internal and external customers². While traditional quality control theories seek out problems, assign fault and attempt to effect improvement by exhorting people to change their behavior, continuous quality improvement (CQI) seeks to understand process and revise those using data about the process themselves. CQI sees problem as opportunity for improvement. The CQI process involves a project-by-project approach to systematically improve quality, not just to maintain status quo³. Total quality management (TQM) rapidly is becoming the principle focus in health care field. TQM describes the philosophy of an organization that is dedicated to continuous quality improvement through out the organization³.

Throughout the world , introduction of organized quality management process in health care sector is fast gaining recognition and thus inviting attention of both the providers and customers of care². Keeping this in mind, study of quality assurance practices in selected teaching hospitals of Kashmir division was planned.

METHODOLOGY

In order to study the status of quality assurance practices in teaching hospitals of Kashmir division , three large hospitals of Srinagar city i.e. Sher-i- Kashmir Institute of medical sciences (SKIMS), Shri Maharaja Hari Singh Hospital (SMHS) and Lalla Ded Hospital (LD) were selected in order to give representation to different types of teaching hospitals like tertiary care, intermediate general and specialty hospitals.

A retrospective study for one year, of available records in administration, patient care (out-patient care , in-patient care, emergency services and operation theatre services) support service departments (radio-diagnosis, laboratories, blood bank, central sterile services department, laundry and linen, dietary services, medical records department, drug and pharmacy department, and medical gases department) was conducted in three selected

hospitals. Where the relevant records were either unavailable or deficient , the required information was supplemented through interviews with the concerned authorities by using a pre-devised interview schedule. This was followed by a three month observational study conducted for a period of one month in each hospital. Taking lead from the “Quality Assurance Programme (QAP)” proforma of Indian Hospital Association,⁽⁴⁾ the developed schedule was used for collecting the relevant information through observation also. The schedule included information among other aspects, on following committees as well:

1. Quality assurance committee
2. Medical records committee
3. Nursing audit committee
4. Infection control committee
5. Antibiotic policy committee
6. Mortality meet committee
7. Grand round committee
8. Inspection committee
9. Utilization review committee
10. Blood transfusion committee
11. Tissue review committee
12. Theatre users committee

The evaluation of patient care was done indirectly, firstly by examining the quality and adequacy of the factors and facilities which contribute towards better care e.g. staff education and training, physical facilities and equipment , clinical and service facilities etc. Quality assurance activities are effectively carried out through standing committees and effectiveness of these committees hospital wise was judged by studying the frequency of meetings of these committees. From available records and information collected through the interview, terms/conditions and modus operandi of the individual committees was studied.

RESULTS

Following observations regarding the status of quality assurance practices were made:

Anaesthesiology :

- Stand-by arrangements in operation theatre are available in SMHS hospital and SKIMS. In LD hospital stand-by arrangements have been kept for central nitrous oxide supply

and suction. In SKIMS stand-by arrangements are verified regularly in operation theatres.

- Down time of equipment in operation theatres remained negligible at all the three hospitals during study period.
- Sterilization and aseptic precautions were observed in all the three hospitals .
- Preventive maintenance and cleaning of equipment is done in SKIMS OT on Saturday.
- To avoid infections zoning concept is followed strictly in operation theatre of SKIMS.
- At SKIMS quality control in TSSU is ensured by use of chemical and biological indicators. During study period biological indicators were used on eight occasions and once the biological strip showed growth , the autoclave was got checked and repaired. Chemical indicator is used with every load in SKIMS TSSU.

Blood transfusion department

- Universal precautions observed by staff at all the three hospitals.
- No down-time of equipment during study period. Preventive maintenance of equipment is done at SKIMS and SMHS hospital.
- Screening of donors, professional donors discouraged, blood grouping and cross matching is done under supervision in all the three hospitals.
- No external quality control is being practiced in all the three hospitals.

Clinical biochemistry

- Automation had been achieved in all the three hospitals.
- Internal quality control is being practiced in all the three hospitals.
- No external quality control exists in LD hospital. At SMHS external quality control through “All India Quality Programme” and rated “A” grade majority of times during study period. External quality control of SKIMS lab. is done through WHO and Land Roche Diagnostics .
- There is no delay in results at SKIMS lab.

Clinical haematology lab.

- Internal and external quality control practiced at SKIMS lab. No external quality control practiced at SMHS hospital and LD hospital.

Microbiology laboratory

- External quality control not being practiced at any of the hospitals.

Radiodiagnosis

- Number of repeat films at SMHS and SKIMS 1% and 1-2% at LD hospital.
- Shortage of staff especially faculty in all the three hospitals, necessary correspondence made.
- Radiation monitoring badges not available for staff on duty at SMHS and LD hospital.

Medical Records Department

- At SKIMS statistical information compiled on daily, monthly, quarterly and yearly basis.
- Majority of staff untrained at SMHS and LD hospital.
- Record keeping and retrieval satisfactory at SKIMS and insufficient at SMHS and LD hospital.
- 60% and 65% patient files reach back to the department at SMHS and LD hospital respectively. 100% case files after discharge of patients reach medical records department at SKIMS and enquiry is conducted for loss of patient record in ward, if any .
- Shortage of staff is at all the three hospitals. Necessary correspondence made.

Laundry

- Fully mechanized laundry at SKIMS and SMHS hospital.
- Shortage of staff at SMHS and LD hospital . Necessary correspondence done.
- Boiler , press, and dryer out of order for three years at LD hospital. No down-time of equipment at SMHS and SKIMS during the study period. Preventive maintenance of equipment done at SKIMS.
- No mechanism of quality control at SMHS and LD hospital. Microbiological testing of samples from dirty , fresh and washed linen being done at SKIMS laundry after every 2-3 months. During the study period reports satisfactory.

Central Sterile Supplies Department (CSSD)

- No zoning of areas at LD hospital. Shortage of space at SMHS and LD hospital.
- Understaffed for workload at SMHS and LD hospital. Majority of staff at LD hospital untrained .
- Chemical indicators used at all the three hospitals but biological indicator used only at SKIMS . During study period it was used twice and found negative for growth.
- Samples from sterilized packs not subjected to microbiological examinations at SMHS and LD hospital. Results were satisfactory at SKIMS.

Dietetics and Therapeutics

- No automation in kitchen at SMHS and LD hospitals.
- Food handlers subjected to periodic medical checkups at all the three hospitals.
- Infection control team at SKIMS periodically takes samples from service areas, utensils and food handlers.

Medical Gas and Suction

- Understaffed at LD hospital.
- At SMHS central supply of medical gas and suction available during the day time for selected areas. At LD hospital central supply of nitrous oxide and suction available between 10am to 4pm and oxygen supplied in cylinders . At SKIMS central supply of medical gases and suction available throughout twenty four hours and in all the patient care areas.

Out Patient Department

- Basic facilities and space not sufficient for waiting patients/ attendants at SMHS hospital and LD hospital.
- Patient satisfaction surveys not done at SMHS and LD hospitals. Patient satisfaction survey was done once at SKIMS OPD.
- No central collection counter for blood samples at SMHS and LD hospital OPD.
- Appointment system to avoid over crowding and reduce waiting times being practiced only in referral clinic of SKIMS.

Accident and Emergency

- Disaster management plan exists only at SKIMS.

Drug and pharmacy

- Internal and external quality control only at SKIMS.

Miscellaneous

- Doubling of patients on bed at times was observed on admission days at SMHS and LD hospital.
- Job description of all the categories of staff are available at SKIMS.

The status of various quality assurance committees in the hospitals under study is depicted in Table-I. The effectiveness of these committees hospital-wise was judged by studying the frequency of meetings of these committees and is depicted in Table-II.

Table-1 : Hospital wise status of various quality assurance committees

Hospital	Medical audit	Nursing audit	Infection control	Utilization review	Tissue review	Theatre users	Inspection	Mortality meet	Blood transfusion
Skims	no	no	yes	no	no	yes	yes	yes	yes
smhs	no	no	no	no	no	yes	yes	no	no
L.d	no	no	no	no	no	yes	yes	no	no

Table-2 : Frequency Of Meeting Of Various Existing Committes (Hospital Wise)

Hospital	Hospital infection Control committee	Mortality meet committee	Grand round committee	Inspection committee	Blood transfusion committee	Theatre Users committee
SKIMS	Committee meets once in two months .During study period convened 6 meetings. Infection control team carries out 1-2 surveys per month. During study period conducted 10 surveys .	committee holds meeting every month to select the cases for presentation in mortality meets held every alternate Saturday	Held every alternate Saturday	When ever supplies are received.	Did not meet during study period	Met once during study period.
SMHS	-	-	-	When ever supplies are received	-	Did not meet during study period
LD	-	-	-	When ever supplies are received	-	-

DISCUSSION

In today’s competitive environment , health care organizations must consider a wide range of innovative business practices to achieve competitive advantage⁵ and successful implementation to TQM strategy requires substantial commitment from employees through out the hospital including management, clinical and support staff⁶. Typically a health care organization with a quality improvement programme establishes a committee on quality or quality council. The quality committee selects several general processes that need improvement and assign the process to quality improvement teams which identify specific components of assigned processes where opportunities for improvement exist . With the aid of quality advisors, the teams analyze the process and propose solutions. The solutions are then implemented, monitored and evaluated. So the constitution of various quality assurance related committees in these hospitals achieves paramount importance for optimum utilization of available meager resources.

The study undertaken showed that although there are a few quality assurance related committees existing in SKIMS hospital, so is not the case with SMHS and LD hospitals. The relevance, functioning and role of these standing committees towards achieving the very purpose of their being constituted can be inferred from the observations although the outcomes are not easily tangible in statistical terms.

The nosocomial infections invariably prolong the average length of hospital stay on an average seven days⁷. A competent and active Infection control is the most important part of a programme for control of nosocomial infection.⁽⁸⁾ The relevance of this committee in tackling the hospital infections thereby increasing the quality of patient care cannot be ignored. Based on the presentations on grand round and mortality meet deficiencies in the treatment are identified. Since materials account for a substantial portion (30-40%) of hospital budget and contribute to a great degree to patient care,⁹ the quality aspect of materials purchased in SKIMS have also been contributing a lot for assuring quality of materials needed for patient care by checks and cross checks and quality control at every step from source identification to the disposal of hospital supplies. There is a

definite need for constitution of hospital infection control committee, grand round and mortality meet committees at SMHS and LD hospital. Although a blood transfusion committee is constituted at SKIMS, it did not meet during the study period. It is imperative to revitalize the functioning of this committee and a similar committee needs to be constituted in SMHS and LD hospital.

In general it was observed that existing quality assurance committees in SKIMS have been contributing a lot in improving the quality of patient care directly or indirectly. However to improve and sustain their efforts and effectiveness to create a strong, consistent organizational culture and environment where employees will provide high quality service to their customers, the hospitals need to make the existing quality assurance committees more effective and purposeful, along with constituting certain other quality assurance committees such as Medical audit, nursing audit committee, utilization review committee, tissue review committee etc. The associated hospitals of Govt Medical college srinagar should follow the suit to herald the quality health care in these hospitals .

It is unrealistic to expect high performance from employees when they are working with poorly maintained or inadequate equipment , substantial supplies, incompetent supervision or lack of a clear method on how to perform a task. Management must provide the means to the ends it proclaims¹⁰. Preventive maintenance of the equipment to reduce their down time is one of the quality control activities in majority of the departments but in some departments unprecedented long down time of equipment affects the ultimate quality of services. Calibration of equipment and standardization of procedures, frequency of using internal control, use of computerized system in labs. under the skilled supervision and external quality control in some labs of SMHS and SKIMS hospitals commensurate with the quality services. In waiting areas, there are better measures and policies to reduce waiting time and turn around time of patients in clinical and clinical support areas in SKIMS than in associated hospitals of GMC. Daily administrative rounds and zoning of certain necessary areas according to speciality is better planned in SKIMS than other hospitals.

Intervention strategies

- Quality management should be included in the curricula during training of doctors , nurses and other staff .
- CME’s should be conducted regularly.
- There should be a separate department of quality assurance in health care sector to look into and implement the quality of care.
- Development of required infrastructure to provide optimum patient care.
- The committees should be constituted in all the hospitals to look into the quality issues and already existing committees should be revitalized.
- Authorities must take the initiative in quality improvement implementations .

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Foreign Bodies in Aerodigestive Tract - A Clinical Profile of 37 Patients

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Abstract: Clinical profile of 37 patients who presented with foreign bodies at different levels of the aerodigestive tract is being discussed. Relevant factors contributing to inhalation/ ingestion and impaction of foreign bodies, their nature as well as investigative and treatment modalities adopted, are also discussed.

INTRODUCTION

Foreign bodies (F.B) in aerodigestive tract is a common concern for all ENT surgeons. While FBs in air passage are commonly seen in younger children, FB in food passage are encountered in children and adults alike. Both sites share a common feature of increased morbidity and mortality, but FBs in tracheo- bronchial area poses additional diagnostic problem which is all the more so in radiolucent FBs. Testing diagnostic acumen and endoscopic skills apart, delayed diagnosis is a lurking danger when patient's parents underestimate symptoms and physician glosses over the clinical and radiological findings.

The present study of FB in aerodigestive tract was undertaken to study of various parameters like age, sex, duration, site, nature of FB, mode of removal and complications.

MATERIAL AND METHOD

A retrospective analysis was done to critically look at the foreign bodies which were either ingested or inhaled; 37 such patients coming to AVBRH Sawangi (M), from Jan 2004 to Jan 2007 were studied. Patients were subjected to detailed history and clinical examination. In order to confirm the presence of FB, its nature and site, radiological investigations and endoscopic assessment were done. In cases of suspected radiolucent FB in oesophagus, small thin barium was given to patient .X ray chest AP and lateral view were resorted to for confirming FB in air passage, and X-ray neck AP and lateral view were done in all patients of FB in food passage. In no patient CT scan was required to be done. Faucial (oropharyngeal) FBs were removed as office procedures while depending on the site of FB ,we resorted to various procedures like direct laryngoscopy, hypopharyngo-scopy, oesophagoscopy and bronchoscopy for retrieval of F.B. Patients were observed for 24 hours post operatively for any complications.

RESULTS

A total number of 37 patients were studied. The youngest patient was 1 year old while the oldest was of 65 years. 28 (75.67%) were males and 9 (24.32%) were females. F.B. in food passage in 29 (78.37%) and F.B. in air passage in 8 (21.62%) were found. Table I and II summarises the profile of patients with FBs in food and air passages respectively.

FB in food passage: Out of 37, 29 (78.37%) patients had FB in food passage. Youngest patient was 1 year old while oldest was of 65 years. 18 (62.06%) were observed in cricopharynx followed by upper oesophagus 3 (10.34%), mid oesophagus 2 (6.80%), lower oesophagus 2(6.80%), tonsils 2 (6.80%), pyriform fossa 1 (3.44%), post cricoid area 1 (3.44%) (Table 1).

A coin seen in 12 cases (41.37%) was the commonest foreign body followed by meat bone in 7 (24.13%); stapler pin, betelnut, metallic spring, metal piece, food bolus, seed and common pin (Fig. 1,2,3).

FB was radio opaque in all except 3cases (89.66%); in the remaining 3 cases, barium was given to confirm their presence. Removal of the FB was done by hypopharyngoscopy in 20 (68.96%), rigid oesophagoscopy in 7 (24.13%), flexible oesphagoscopy 1 (3.44%) and OPD removal in 2 (6.89%). None of our patients had any complications.

FB in air passage: Out of 37 patients, 8 (21.62%) had FB in air passage. Youngest patient was 1 year old while oldest was of 40 years. In 4 of 8 patients (50%) FB was in the right bronchus and in 2 patients (25%), it was in the left bronchus, while in one each (12.5%) in the trachea and larynx (Table 1). Seed was the commonest FB seen in 6 out of 8, (75%) while in the other two patients it was whistle and thorn. In none of 8 patients, FBs were radiopaque; neither was it associated with any chest x-ray findings. Bronchoscopy in 7 patients (87.5%) and direct laryngoscopy in 1 patient(12.5%) were the procedures employed to remove FBs. No complications encountered.

Table 1: Site wise distribution of patients

FB in food passage		FB air passage	
Site	No. of patients	Site	No. of patients
Cricopharynx	18	Right bronchus	4
Mid oesophagus	3	Left bronchus	2
Upper oesophagus	2	Trachea	1
Lower oesophagus	2	Glottis	1
Post cricoid area	1	Tonsil	2
Pyriform fossa (right)	1	Total	8
Total	29		

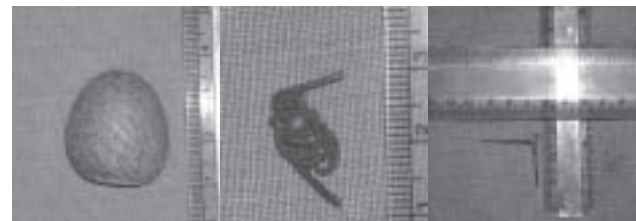


Fig 1: Betelnut removed from cricopharynx. Fig 2: Metallic spring retrieved from cricopharynx. Fig 3: Thorn removed from glottis.

DISCUSSION

It was the revolutionary work of Chevalier Jackson & Chevalier L Jackson in 1949 through 1957 that broncho-oesophagoscopy got its individuality as a medical science. Regarding FBs in airway and bronchus, the endoscope was first utilized for removal of FB in 1897; prior to this bronchotomy was the procedure used. Management of such patients was revolutionized by the technique and instruments developed by Chevalier Jackson in 1904. The mortality decreased from more than 20% to 2%¹.

Out of 37 patients of FB in aerodigestive tract 29 (78.37%) were in the food passage while 8 (21.62%) were in air way. In their study,

Hung W and Lin P² found, 76% and 24.7% FBs in food passage and air passage respectively while Brooks et al³ found it 80% and 20% respectively. In another large study 86.2% of FBs were in the pharyngo oesophageal region, while 13.7% in tracheobronchial region¹.

Amongst the cases of FB in the food passage, age ranged from 1 year to 65 years; however FB has also been reported⁴. In the literature, amongst infants oesophageal FBs are common especially in children. Most are ingested by children younger than 5 year with the peak incidence between 6 months to 3 years as a sequel to natural proclivity to put things in their mouth^{5,6,7}. We found our cases evenly spread over all age groups though they are marginally more below 5 years. 18 (62.06%) out of 29 FBs in food passage were found in cricopharynx; This was due to poor peristalsis, sphincteric action and narrow diameter. In one large series¹, 50.5% FBs in food passage were also seen in cricopharynx, thus supporting our observation. Similarly, in yet another study⁸, 83.5% of FBs were located at the cricopharynx.

We observed coin 12 (41.37%) followed by meat bone 7 (24.13%) to be the commonest type of FB in food passage. In a study of 152 cases (104 children and 48 adults), 91 FBs (69%) were coin; Kamat et al¹ found fish bone (39%) as the commonest FB. Geographical factors involved in the study (coastal area) may account for this difference in findings.

All our patients except 3 (10.34%) had radiological evidence of FBs. In these three patients FBs being radiolucent, thin barium was given and diagnosis were made after the Ba swallow. Kamat et al¹ observed that 81.2% had either direct or indirect evidence of FB. None of our patients developed complications; in one case stricture, aoesophagy, flexible oesphagoscopy was resorted and FB was partly removed and was partly pushed into the stomach.

FB in air passage:

Youngest patient was 1 year old while oldest was 40 years. Relatively smaller number of patients limit our ability to comprehensively compare it with other studies.

In 4 (50%) patients FBs were encountered in the right bronchus, whereas in 2 (25%) patients they were in the left bronchus. In a study where 42 patients were studied, 25 FBs were in the right main bronchus and 17 in left main bronchus, thus supporting the

conventional observation that right bronchus being larger and straighter, invite FB more frequently. In 6 patients (75%) nature of FB was seed. Bhalodia et al⁹ found vegetable FB, mostly seed (ground nut) in 38 out of 42 patients, which is in keeping with our observation. None of our patients with FB in airway had evidence of FB (direct or indirect) and only after bronchoscopy FBs were revealed and removed.

Cases with suspected FB in tracheo bronchial tree can present with normal auscultatory and/or X-ray chest findings. A definitive or suspicious history of FB inhalation should be the most important factor in deciding for bronchoscopy in these patients. Performing an X-ray chest in these patients at the time of presentation has only a limited value in diagnosis and should never influence the decision for a timely bronchoscopy. Bhalodiya et al found normal X-ray finding in 32 out of 42 patients. They also observed that the time elapsed since inhalation was significantly related to normalcy of X-ray chest findings. None of our patients including one who had ASD, congenital heart disease developed any complications.

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P. D. Gulati
Editor JIMSA

Histopathological Spectrum of Metaplasia, Dysplasia and Malignancy in Gall Bladder and Association with Gall Stones.

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Abstract: Cholecystectomy is the most common abdominal surgery & in majority of the cases, is performed due to gall-stones that seems to cause premalignant changes like dysplasia. The objectives of this study was to determine the incidence of metaplasia, dysplasia and malignancy in cholecystectomy specimens and explored its association with gall stones. All total 900 cholecystectomy specimens were collected for the period of 2 years done in the institute. Clinical features were reviewed & prevalence of gall stone was noted with reference to presence or absence of dysplasia or malignancy. A total of 50 cases were found to have their dysplasia done or dysplasia with malignancy or malignancy without dysplasia 36 cases showed isolated dysplasia & 14 cases carcinoma, out of which 12 had dysplasia in adjacent mucosa. Out of 30 specimens showing metaplastic changes, including one rare case of squamous metaplasia, 19 cases were associated with dysplasia and 10 cases with carcinoma. Age range was 12 to 80 years for dysplasia and 38 to 84 for carcinoma. Gall stones were found in 88.8% (i.e., 32/36) cases showing dysplasia and 78.5% (i.e., 11/14) of cases showing carcinoma. The incidence of dysplastic change in the adjacent mucosa in cases of GB carcinoma was 85.7% (i.e., 12/14). The lesions were predominantly found in females. **Conclusion:** These observations thus reveal a relationship between gall-stones and premalignant and malignant conditions of gall bladder, though carcinoma may appear de novo.

INTRODUCTION

Gallstones are the most common biliary pathology making cholecystectomy the most common abdominal surgery throughout the world. Gallbladders with carcinoma usually also contain calculi (80-90% of cases.)¹. A high incidence of carcinoma of gall bladder is observed in subjects with high incidence of stones or who have been harbouring stones for a longer duration².

Two schools of thought have emerged as to the pathogenesis of the malignant lesions of the gall bladder due to gall stone disease: (a) Epithelial hyperplasia > through dysplasia to > neoplasia. (b) Epithelial metaplasia leading to dysplasia, carcinoma-in-situ and invasive cancer³. Current literature favors the second hypothesis. Presumably, gall bladder containing stones develop cancer as a result of constant irritation, trauma and chronic inflammation.

It has been observed that subcellular, biochemical, histochemical and molecular alterations in epithelial cells of the gall bladder may precede the development of malignancy⁴. Therefore, the study of dysplastic changes and malignancy associated with gallstone disease is important for better understanding of gall stone disease. The present work has been designed with the aims of finding out: (1) An association between mucosal metaplasia, dysplasia and carcinoma. (2) Correlation between carcinoma and gallstone.

MATERIALS AND METHODS

900 surgical specimens of gall bladder were included in the study. Clinical features were noted in each case including the presence or absence of stones. The gall bladders were promptly fixed in 10% formalin following excision to avoid autolytic changes in mucosa. If stones were present they were washed and estimated in terms of number, size and type of stones. Sections were taken from any suspicious areas of mural thickening or mucosal ulceration. Small masses or polyps were also submitted for histopathologic examination. A total of three full-thickness tissue sections including fundus, body and neck of gall bladder were taken from each specimen. Subserosal Cystic lymph node, if, present was also taken.

After fixation, the tissue were processed with routine methods and 5 mm thick sections were cut and stained with hematoxylin and eosin for studying histopathological changes. When dysplasia was found additional multiple sections were taken for microscopic examination.

RESULTS

Total number of cases included in the study for analysis was fifty. Isolated dysplasia was present in 36 cases and gall bladder carcinoma (GB CA) in 14 cases.

Gallstones were present in forty-three out of fifty cases among which thirty-two cases i.e. 88.8% were associated with *dysplasia* and eleven cases i.e., 78.5% were associated with *dysplasia* and *carcinoma*.

The age range of isolated dysplasia (not associated with carcinoma) was 12-80 years, the mean age being 47 years & male to female ratio being 1:1.2.

The age range in cases of *gall bladder* carcinoma was 38 to 84 years, the mean age being about 57.3 years & male: female being 1:1.8. There was difference of 10 years in mean age in patients showing dysplasia & carcinoma.

Of the total 14 cases of *gall bladder* carcinoma, 12 cases revealed *dysplasia* in the adjacent mucosa. In one case, tumour presented as a gall bladder mass and the superficial or adjacent mucosa was not available for study. In another case, no dysplasia was seen in adjacent mucosa.

The *metaplastic changes* were seen in continuity with dysplastic epithelium as well as focal separate lesions. These changes were more frequently seen in areas showing dysplasia. It was seen that stones were present in all (100%) gall bladders with antral/intestinal metaplastic changes (Table 1).

Table 1: Incidence of Gall Stones in dysplasia and carcinoma

	Total cases	Stone present	Stone absent
Dysplasia	36	32(88.8%)	4(11.1%)
Carcinoma	14	11(78.5%)	3(21.4%)

Metaplasia/dysplasia, in the adjacent gall bladder mucosa, 12 out of 14 cases showed metaplastic changes (antral or intestinal or both) i.e. 78.5%. 11 out of 14 (85.7%) cases shows dysplastic changes. Intestinal metaplasia was present in 6(42.8%) and antral/pseudopyloric metaplasia in 4(28.5%) cases One case showed squamous metaplasia (71%) and in one cases, both antral as well as intestinal metaplasia was present (table 2). identified by the presence of goblet cells in the epithelium (fig-1). Antral metaplasia was identified as glands lined by cuboidal to columnar epithelium with large quantities of clear mucin having morphological resemblance to Brunner's glands (fig-

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1). Squamous metaplasia was identified by the presence of typical squamous epithelium differentiation in gall bladder mucosa. Cholesterolosis was identified by presence of cholesterol laden foamy macrophages in the lamina propria of gall bladder mucosa (Fig. 1,2,3)

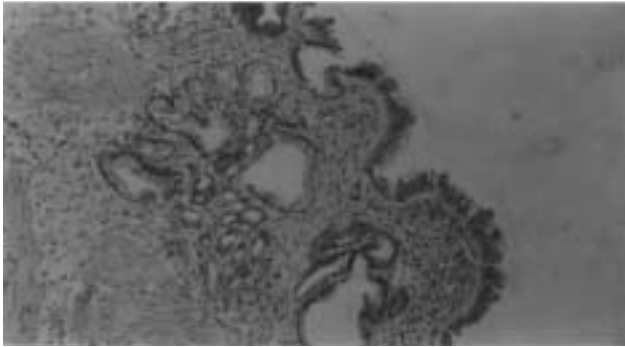


Figure 1: Gallbladder wall showing normal mucosa in continuity with intestinal metaplasia and dysplasia. Antral type glands are seen in lamina propria some of which are showing dysplastic changes. (H&EX100)

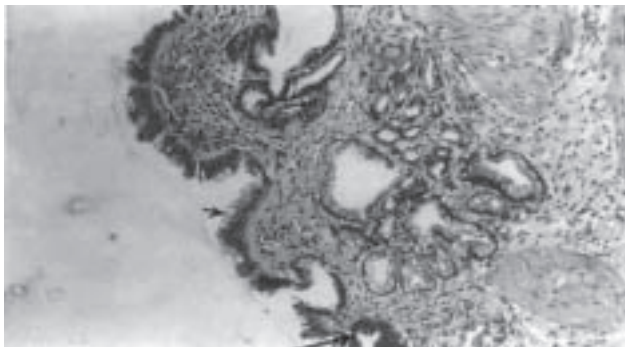


Figure 2: Picture of gallbladder wall showing mucosa in transition from normal to low grade dysplasia as shown in inset. (H&EX100), inset (H&EX400)

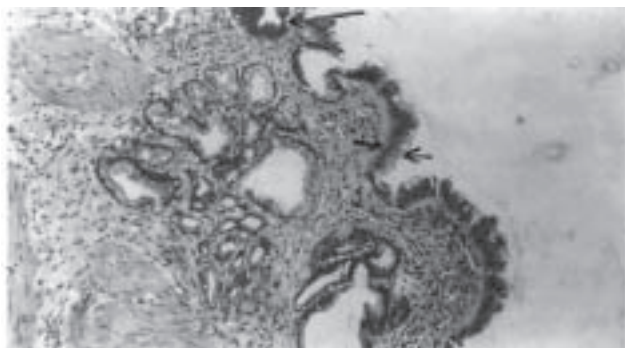


Figure 3: Picture of gallbladder wall transition from normal (small arrow) to high grade dysplasia. (Big arrow). Adysplastic gland is seen in lamina propria. (marked by star). (H&EX100)

Table 2: Histopathological features in Adjacent Mucosa in Cases of Isolated Dysplasia and their Incidence with Gall Stones

		Stones present	Stones absent
Acute cholecystitis	7(19.4%)	5(71%)	2
Chronic cholecystitis	29(30.5%)	27(93%)	2
Cholesterolosis	5(13.8%)	5(100%)	0
Antral metaplasia	10(27.7%)	10(100%)	0
Intestinal metaplasia	9(25%)	9(100%)	0

Table3: Histopathological Changes in Adjacent Mucosa in Cases of Gall Bladder Carcinoma

	Total	With stone	Without stone
Dysplasia	12	11(91.6%)	1
Antral metaplasia	4	4(100%)	0
Intestinal metaplasia	6	5(83%)	1
Squamous metaplasia	1	0	1(7.14%)
Cholesterosis	1	1(7.14%)	0

Table 4: Histological Classification of Gall Bladder Carcinoma found in this Study

Histological type	No. of cases	Percentage
Well differentiated adenocarcinoma	1	7.1%
Papillary adenocarcinoma	2	14.2%
Mucin secreting adenocarcinoma	2	14.2%
Moderately differentiated adenocarcinoma	5	35.7%
Poorly differentiated adenocarcinoma	3	21.4%
Adenosquamous carcinoma	1	7.1%
Total	14	

DISCUSSION

It is well known that gallstone is an important risk factor for the development of carcinoma gall bladder but causal relationship is still unproven. Finding of gallstone in over 75% of cases of GB CA in this study do suggest a possible link. Although this does not prove gall stone to be a causative factor, but such high association points towards an important etiological risk factor. Martinez et al⁵ have also illustrated that low and high grade dysplasia, tubular adenomas, carcinoma in situ and invasive carcinoma were more frequent when cholelithiasis was present ($p < .05$) than in cases without lithiasis⁵. The results of the study done by Vitteta et al⁶ showed that primary carcinoma of gall bladder was always associated with single or multiple cholesterol gallstones that were impacting on gall bladder wall. In present study gallstones were present in over 78.5% of cases of gall bladder carcinoma. Piehler JM, Crichlow RW et al⁷ have also found the incidence of 65-90% of gallstones in the patients with gall bladder carcinoma that is in concordance with present study. No patients with gall bladder carcinoma had brown or black pigment stones and in present study too, none of the patients had pigment stones.

The pathogenesis, by which the gallstones lead to gall bladder carcinoma is a matter of debate, but it has been suggested that the frequency of various epithelial changes that is ulceration, mucosal hyperplasia, metaplasia and dysplasia is more common in calculous cholecystitis than in normal gall bladders. It is due to this constant chronic irritation and inflammation leading to such epithelial changes that gall stone may be involved in the pathogenesis of gall bladder cancer. In the gall bladders that showed dysplasia, such changes were seen more frequently in the fundus and body region rather than neck.

The incidence of metaplastic changes in dysplastic gall bladders in our study was 57%. In 27% of cases antral metaplasia was seen and in 25% of cases intestinal metaplasia was also present. Gallstones were present in 91% of gall bladders showing dysplasia

and in all cases (100%) of cholelithiasis showing both antral and intestinal metaplasia.

Yamigawa H⁸ have found gallstones in 86.9% of cases with dysplasia, results; very similar to present study. They have found intestinal metaplasia and pseudopyloric gland metaplasia in 80.4% and 100% of patient with gallstones.

Gupta SC et al⁹ have also found high prevalence of gall stones in gall bladders with metaplastic, dysplastic and neoplastic changes than those gall bladders which showed no epithelial changes.

Sanjay Mukhopadhyaya et al¹⁰ showed significant association between antral and intestinal type metaplasia (p<.001) & between intestinal metaplasia and dysplasia (p<.001, chi square test) suggesting, a progression from antral type metaplasia to dysplasia.¹⁰

Gupta SC et al⁷ have also found high prevalence of gall stones in gall bladders with metaplastic, dysplastic and neoplastic changes than those gall bladders, which showed no epithelial changes.

In gall bladder carcinomas, gallstones were found in 78.5 percent of cases. 3 cases i.e. 21 percent were not associated with gallstone. Eleven cases i.e. (78.5%) showed metaplastic changes. Out of which stone was present in all but two cases. Among these two cases one case showed squamous metaplasia and another case showed intestinal metaplasia. The cause of metaplastic changes in these two cases is not clear.

The intestinal metaplasia was focal and interrupted and more frequently associated with dysplastic changes. In few cases goblet cells representing intestinal metaplasia were also seen arising within the area of antral metaplasia.

Liatio M⁴ studied 71 cholecystectomy specimens and found dysplastic changes in 24 gall bladders. Metaplasia was noted in 20 cases and in 14 cases was associated within the dysplastic portion.

In present study dysplasia was seen in 12 out of 14 (85.7%) cases of gall bladder carcinoma in the adjacent or superficial.

Such high percentage suggests definite close association between dysplasia and carcinoma Albores Saavedra et al¹¹ and Dowling J.P.Kelly³.

Metaplastic changes were seen in 11 out of 14 cases of gall bladder carcinoma. Intestinal metaplasia was seen more frequently than antral metaplasia. One case showed both intestinal as well as antral metaplasia. These metaplastic changes were seen adjacent to dysplastic portions as well as in the areas of frank malignancy further strengthening the hypothesis that dysplasia may occur in simultaneously metaplastic epithelium. One case showed squamous metaplasia in superficial mucosa most of which was ulcerated and showed a poorly differentiated adenosquamous cell carcinoma infiltrating throughout the wall the lanes of gall bladder. This case was not associated with gallstone.

Although cholesterosis is not considered a premalignant condition, but we have found one case of GB CA showing features of cholesterosis focally. This was a well differentiated papillary adenocarcinoma. It could be primary event or it may so happen that adenocarcinoma arose first and then tumour epithelium absorbed cholesterol from bile & foamy cells were produced secondarily. Cholesterosis is usually associated with benign papillary hyperplasia.

Akiyama T et al¹² have reported two cases of carcinoma in situ of gall bladder associated with cholesterosis. One was mucinous carcinoma on subsequent sections & other was papillary adenocarcinoma.

The male and female sex ratio in cases of dysplasia was 1:2.2 and in cases of carcinomas was 1:1.8 in the present study, hence the frequency of GB cancer is more common in females.^{4,5,6,14}

The study shows a difference of about 10 years in the cases of dysplasia and gall bladder carcinoma suggesting that a period of about 10 years is needed for dysplasia to convert into carcinoma. Roa et al¹³ have also studied preneoplastic lesions and gall bladder cancer. They statistically analyzed the time required for change of dysplasia to carcinoma of gall bladder using age as main parameter and concluded that the period required to progress from dysplasia to carcinoma would be around 15 years observing a continuum in the progression of disease.

CONCLUSION

The results of this study showed presence of gallstones in 88.8% of cases with dysplasia and 78.5% cases of adenocarcinoma of gall bladder and thereby support a good association with gallstone and the incidence of dysplastic and malignant changes seen in choleaectomy specimens of gall bladders. The high incidence (85.7%) of severe dysplastic changes in the adjacent mucosa in cases of GB carcinoma strongly suggest that it could be a *pre-malignant* lesion. However, the absence of dysplastic change in adjacent mucosa in one case means that GB carcinoma can also arise directly without the preceding change of dysplasia. Mean age of patients with dysplasia was 10 years younger than patients with carcinoma. The disease prevalence shows a female preponderance in the study.

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Geographical Tongue: Cleared with Antimicrobial Mouth Wash - A Case Report

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Abstract: This report relates how an antimicrobial mouth wash which cleared the Geographical Tongue (GT), a condition with uncertain etiology and no specific treatment.

CASE REPORT

The patient aged 79 yrs, was not diabetic, not on steroids, receiving lowest doses of antihypertensive drugs (beta blocker and Ca⁺⁺ channel blocker) 1988 to 1996 and later changed to ACE inhibitor enalapril. In 2004 it was changed to ramipril, which produced severe loss of taste and glossitis as small ulcers. Injections of folic acid, Vit B12 and nicotinamide for 5 weeks did not help. In January 2005 ACE inhibitor was replaced with ARB losartan. The lesions in the anterior portion of tongue were suggestive of GT. A patch of loss of epithelium appeared on one side, increased for a time, healed and reappeared in the other half. When losartan was changed to Telmisartan in March 2005, taste improved, but the tongue lesions persisted.

In May 2005, the patient developed a periodontal abscess which was opened and irrigated. This was followed by antimicrobial mouth wash PLAX[®] (triclosan 0.03% w/v, sodium fluoride 0.025% w/v, ethyl alcohol 12.0% v/v) - applied for 30 seconds, spit out and rinsed 20 min later, after each solid meal for 1 week and once daily later. Surprisingly there was simultaneous complete reversal of the GT lesions within 10 days. The tongue lost white coating and the desquamated portion changed in color. With tongue normal for 3 months, the daily mouth wash with PLAX[®] was changed to twice a week. In April 2006 (11 months after first episode) two red areas again appeared with raised margins. PLAX[®] mouth wash was repeated vigorously. The tongue coating was reduced. By sixth day the anterior part of tongue was smooth and rest of tongue less coated. By the 10th day tongue regained normal appearance.

DISCUSSION

Benign migratory glossitis, called 'geographic tongue', with undetermined etiology, causes the patient considerable worry. In most cases, patients do not require treatment other than reassurance

because of benign nature of the disorder¹. Total *atrophic tongue* is attributed to nutritional deficiencies, Vit B12, folic acid, or iron and partial atrophic tongue is referred as GT². In the present case Vit A, folic Acid, B12 and nicotinamide given as injections did not ameliorate the condition. Various hypotheses proposed for GT are - an expression of oral psoriasis,³ atopy⁴ and oral candidiasis². It is being treated with various procedures: brushing of tongue, topical or systemic corticoids, immuno suppressants cyclosporine⁵. In the present case GT was cleared after an antimicrobial mouth wash indicating a role for microbes in its etiology. Since taste loss preceded the tongue manifestations, it is possible that microbial invasion caused GT over changes induced by angiotensin converting enzyme (ACE) inhibitors in the tongue. Though the taste sensation was restored after use of ARB, tongue lesions reverted only after using the antimicrobial mouth wash. Further trials would help in confirming this beneficial effect of antimicrobial mouth wash in GT. ACE inhibitors are known to produce cough and loss of taste. The pharyngeal secretions can be a source of infection in susceptible individuals. It is necessary to investigate the role of ACE in controlling taste and maintaining the structural integrity of tongue.

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ETHICAL GUIDELINES FOR BIOMEDICAL RESEARCH

The need for uniform ethical guidelines for research on human subjects is universally recognised. It has acquired a new sense of urgency as the critical issues in the area of biogenetic research involving human subjects have become acute. Apart from the mandatory clinical trials on new drugs, a number of diagnostic procedures, therapeutic interventions and prevention measures including the use of vaccines, are being introduced which involve human subjects. Further the advent of new medical devices and radio-active materials and therapeutic benefits of recombinant DNA products have added a new dimension to the ethical issues that need to be considered before evaluating these for their efficacy, utility and safety.

Any research using the human beings as subjects shall bear in

mind the following principles of : (i) essentiality, (ii) voluntariness, informed consent, (iii) non exploitation, (iv) privacy and confidentiality, (v) precaution and risk minimisation, (vi) professional competence, (vii) accountability & transparency, (viii) maximisation of public interest and distributive justice (ix) institutional arrangements (x) public domain (xi) totality of responsibility and (xii) compliance.

Recent advances in the field of Assisted Reproductive technologies, organ transplantation, Human genome analysis, and gene therapy promise unquestionable benefits to mankind. At the same time, they raise many questions of law and ethics, stimulating public interest and concern.

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THYROTOXIC PERIODIC PARALYSIS - A CASE REPORT

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Abstract: A 25 year old male patient having developed weakness of all the four limbs with signs/symptoms suggestive of hyperthyroidism and biochemical evidence of hypokalemia is being reported here for its rarity.

INTRODUCTION

Thyrotoxic periodic paralysis (TPP) is a thyroid related disorder that is manifested as recurrent episodes of hypokalemia and muscle weakness (hypokalemic periodic paralysis) lasting from hours to days. It is most commonly described among Asian men and is a well known complication of thyrotoxicosis. Proximal muscles are affected more severely than the distal muscles. Sensory function is preserved. Bladder symptoms are absent. In majority of patients, deep tendon reflexes are markedly diminished or absent although some patients may show evidence of normal or brisk jerks, even during paralysis[3]. TPP is identical to familial periodic paralysis (FPP), except for the fact that hyperthyroidism is an absolute requirement for the expression of the disease. Weakness rarely progresses to involve the muscles above the neck, thus sparing bulbar and respiratory musculature. Majority of patients have subtle or no symptoms of hyperthyroidism. Treatment consists of emergent correction of hypokalemia and management of thyrotoxic state.

CASE REPORT

A 25 year old non smoker, non diabetic, non-alcoholic male patient presented with signs and symptoms of thyrotoxicosis in the form of increased sweating, palpitation and fever. He gave history of weakness of four limbs 3 days ago with history of shooting pain in the legs while walking. No history of either respiratory, urinary problem, sensory loss in any limb, backache, involuntary movements, pain abdomen and drug intake, trauma or heavy exercise was available. His past history did not reveal similar episodes of pain, discomfort and weakness in all the four limbs. There was no history of similar illness in the family. On physical examination, he was conscious afebrile, anxious looking, had obvious exophthalmos bilaterally. Pulse was 94/min, regular and of good volume. BP was 150/70 mmHg in the right arm in the supine position. Respiratory rate was 22/min. Examination of respiratory and cardiovascular systems was normal. On neurological examination, higher mental functions and cranial nerves were normal. He had fine tremors of both hands, proximal weakness in both arms and legs associated with diminished deep tendon reflexes bilaterally. Power was grade 1/5 at both hip joints bilaterally and grade 1/5 at knee and ankle joints. Power at all joints in both upper limbs was 0/5. Tone was decreased in all four limbs. Sensory system and cerebellar functions were normal. Examination of neck revealed diffuse goitre with systolic bruit over it. His laboratory profile included Hb 9.6 g%; TLC 8100/mm³; DLC P83,

L17 B0, M0, E0; B.urea 26 mg%; Blood sugar 92 mg%; S.Na 126 mEq/L; S.K 2.0 mEq/L; S.Calcium 10.6 mg%; S.Phosphate 3.5 mg%; S.Magnesium 2.8 mmol/L and urine examination NAD. Thyroid profile revealed T3 246 mg/dl (normal 70-190); T4 18.1 mg/dl (normal 5-12); TSH 0.01 u IU/ml (normal 0.4-5). Arterial blood gases analysis showed no abnormality. X-ray chest was normal. Ultrasonography of thyroid revealed altered echotexture with increased blood flow. ECG showed prolonged QT interval. In view of unequivocal evidence of thyrotoxicosis, muscular weakness and documented hypokalemia, a diagnosis of hypokalemic thyrotoxic periodic paralysis (HTPP) was made. The patient was put on I.V potassium chloride (Kcl) and within few hours, he improved dramatically. He started moving all the four limbs the next day. Power improved to 5/5 in all four limbs and reflexes returned to normal. He was also given tablet propranolol 3 mg/Kg body weight and was advised for follow up. At 3 months period, he was found satisfactorily performing all routine activities of daily life.

DISCUSSION

TPP is most commonly described among Asian men in the age group of 20-40 years. However, recently it has been reported among white people, Native American Indians, black people and Aborigines. In Orientals, it occurs 75 times more frequently in males than females¹. This is despite the fact that there is much higher incidence of thyrotoxicosis in women. Patients usually present with clinical features of thyrotoxicosis and the attack is characterised by sudden recurrent transient episodes of muscle weakness that range from mild weakness to complete flaccid paralysis⁵. Proximal muscles are affected more severely than distal muscles. The paralytic attacks have a well marked seasonal variation usually occurring during the warmer months of May to October but less during the colder months of December to March¹. This is due to the fact that sweating is greatly increased during summer and the resulting hypokalemia may be responsible. In summer, the resulting thirst is commonly quenched by cold drinks with high sugar content, which may also precipitate attacks. Various precipitating factors include trauma, infection, emotional upset, menstruation, epinephrine, thyroid hormone, steroid, exercise, carbohydrate intake, alcohol and unaccustomed exercise. In majority of the patients deep tendon reflexes are markedly diminished or absent although some may show evidence of brisk or normal jerks even during paralysis³. The weakness also follows a diurnal pattern often occurring at night when the person is resting or during the resting period after exercise but does not occur during

exercise⁶. Sensory function is normal. In majority of the patients, deep tendon reflexes are markedly diminished or absent, although some may show evidence of brisk or normal jerks even during paralysis³. In TPP, hypokalemia is the underlying biochemical disturbance which provokes paralysis². Hypokalemia occurs due to a massive shift of potassium into the cells rather than a net loss from the body. In addition to hypokalemia, hypophosphatemia and hypomagnesemia have been reported. Rebound hyperkalemia after therapy may occur in about 40% of patients⁷. Electromyography during a paralytic attack, reveals myopathic changes in the form of decrease in the duration of compound muscle action potential, increase in polyphasic potentials, and reduced amplitude of evoked muscle action potential on nerve stimulation. Peripheral nerve function is normal⁸. The pathophysiology of TPP remains unclear. Hypokalemia occurs due to rapid and massive shift of potassium from the extracellular into the intracellular compartment mainly into the muscles. This is probably due to increased Na/K-ATPase pump activity in patients of TPP⁹. Development of paralysis is partly influenced by the hyperadrenergic state characteristic of thyrotoxicosis thereby, further increasing Na/K-ATPase activity. Exercise releases potassium from the skeletal muscles whereas rest promotes influx of potassium. This explains why paralytic attacks occur only during recovery from exercise and resumption of exercise can abort an attack⁴. Regarding role of genetics in the development of TPP there is association with HLA-DRW8 gene as revealed in Japanese men¹⁰. Treatment consists of emergent correction with I.V KCl and management of thyrotoxic state alongwith ECG monitoring. Oral propranolol in doses of 3 mg/Kg is given to reverse paralysis, hypokalemia and hypophosphatemia¹¹. Genetic counselling and

prenatal testing may be helpful in few patients of TPP because it may be inherited in autosomal dominant manner.

CONCLUSION

Early diagnosis and prompt treatment are important. Clinically TPP mimics many common diseases which must be excluded. It is a curable disorder that resolves when an euthyroid state is achieved.

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DRUG PROFILE

Aliskiren

Pharmacology: Aliskiren 2(S),4(S),5(S),7(S)-N (2-carbamoyl-2- methylpropyl)-5-amino-hydroxy- 2-7-diisopropyl-8(4-methoxy-3-13-methoxypropyl) octanamide, is the first in a new class of orally active non peptide, , molecular weight (551.8 g/mol) rennin inhibitor. The active with four chiral carbons, but exists as a single diastereoisomer. It is a highly affinity and specificity for human renin. It binds to the S1/S3 conversion of angiotensinogen to Ang I. Aliskiren, is first DRI with bioavailability of 2.5% and has shown to be generally well tolerated when given as single or multiple dose. **Pharmacokinetics:** The plasma concentration of aliskiren increased in a dose dependent manner, following oral administration in healthy volunteers, with peak concentration reached after 3-6 hours. Oral bioavailability of aliskiren was about 5% (for 95% it is excreted unchanged in faeces) and plasma steady state level were reached after 5-8 days of treatment. An average plasma half- life of 23.7 hours (range 20-45 hours) makes drugs suitable for once daily administration. Aliskiren is not metabolized by cytochrome P450 system and interact with warfarin, and a number of other compound. Drug showed no clinically, valsartan. HCTZ and ramipril, in healthy volunteers. **Mechanism of Action:** Elevated PRA has been identified independent predictor of morbidity and mortality (p=0.0025) in a large scale trial of 4300 patients with congestive heart failure. Aliskiren inhibits the rennin by directly targeting the renin enzyme, at the point of activation and blocking the conversion of angiotensinogen to Ang I and decreasing levels of Ang I and II. Aliskiren decreases PRA by approximately 50-08% and provides similar reduction when administered in combination with drugs know to increase PRA such as the ACE inhibitor ramipril, the ARB valsartan or the diuretic HCTZ. **Efficiency & indication:** Aliskiren decrease PRA, Ang I and Ang II levels in normotensive volunteers in a dose dependent manner, decrease in plasma and urine aldosterone levels were also noted with daily aliskiren doses of 80 mg and above. Aliskiren 160 mg and enalapril 20 mg doses were comparable in terms of their inhibitory effects on Ang II levels BP nor heart rate was affected by aliskiren and enalapril in these normotensive subjects, In a within -study, 12 sodium-depleted normotensive subjects were randomly given placebo, aliskiren 300 mg/day, valsartan (150 mg/day, +80 mg/day, As expected, aliskiren along decrease PRA while valsartan along increased PRA, Ang I and Ang II. The combination of aliskiren and valsartan completely eliminated the rise in PRA elicited by valsartan.

FLUOXETINE:INDUCED TREMORS - A CASE REPORT

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Abstract: Fluoxetine is the most frequently used antidepressant in clinical practice and has been found to be effective in premenstrual syndrome, fibromyalgia, obesity, hypochondriasis and chronic pain etc. Fluoxetine induced tremors are reversible and rarely present as a life threatening situation. A case of fluoxetine induced tremor in a young female patient is reported here.

INTRODUCTION

Fluoxetine is a racemic mixture of R-fluoxetine and S-Fluoxetine in equal proportions. Both are approximately equipotent in serotonin reuptake inhibition activity, though the S-Fluoxetine enantiomer is more slowly eliminated and is therefore the predominant form in plasma at steady state. Fluoxetine is a specific serotonin reuptake inhibitor (SSRI) presumed to be working by desensitising both inhibitory somatodendritic and terminal 5-HT autoreceptors, thus increasing central nervous system 5-HT synaptic transmission. It is used in major depressive disorder, bipolar disorders, dysthymic disorder, seasonal affective disorder, trichotillomania, obsessive compulsive disorder, bulimia nervosa, panic disorder, social phobia, premature ejaculation, chronic fatigue syndrome and fibromyalgia^{1,2}.

CASE REPORT

A 35 years old married female patient nondiabetic, nonhypertensive vegetarian presented with tremors of both hands for the last 10 days. She also had history of inability of carrying out routine daily activities with hands. Her medical record revealed that she had been earlier diagnosed to be a case of depressive disorder and was on Fluoxetine (Flx) 20 mg daily. She developed tremors 15 days after taking (Flx). There was no history of head trauma, cerebrovascular accident, no signs/symptoms suggestive of thyrotoxicosis and Parkinsonism. There was no family history of tremors or any other movement disorder. On physical examination, pulse was 90/min, regular; BP 130/80 mmHg; Respiratory rate 18/min. Her mental status examination revealed depressive mood, decreased motor activity and suicidal tendencies. The frequency of finger tremors of both hands was 10 Hz, which increased on holding arms in an outstretched position in front of body. Tremors did not involve speech, head, tongue, jaw or trunk. She had no other extrapyramidal deficits. Her laboratory investigations revealed Hb 12.7g%, TLC 6800/mm³, DLC P-68, L-32, E-0, B-0; Blood Urea 35 mg/dl, serum creatinine 0.9 mg/dl, ECG within normal limits, urine examination normal. Lipid profile, thyroid functions, CT Brain were normal. Keeping in view her history, laboratory investigations and consumption of Fluoxetine, a diagnosis of Flx-induced tremors was made. She was advised to discontinue Flx and instead put on amitriptyline 50 mg twice daily i.e. tricyclic antidepressant. She showed marked improvement within 6 days of stopping Flx and her tremors disappeared. However, after one and a half months, she again presented with the previous complaints and on enquiry she confided that she had again started taking Flx for one month following its discontinuation. Amitriptyline 50 mg twice daily was restarted and she showed remarkable improvement. At 3 months follow up, she was symptom free and is now on regular follow up.

DISCUSSION

Flx is the most frequently used antidepressant in day to day clinical practice. It is a specific serotonin reuptake inhibitor and acts by desensitising both inhibitory somatodendritic and terminal 5-HT autoreceptors, thereby increasing central nervous system 5-HT synaptic transmission. Tremor is commonly encountered a side effect of many drugs. Drug induced tremor is most characteristically a postural or action tremors interfering with activities of daily living. Flx is also found to be effective for the management of premenstrual syndrome, fibromyalgia, hypochondriasis, obesity and chronic pain etc^{1,2}.

The elimination half life of Fluoxetine is 1-3 days after short term administration and 4-6 days following long term administration. Flx is reported to cause many side effects including tremor and akathisia like manifestation characterised by agitation, restless motor movements, dysphoria, pacing and internal sense of desperation and suicidal tendencies. Use of high doses may cause a syndrome resembling frontal lobe syndrome and syndrome of inappropriate secretion of antidiuretic hormone (SIADH). Tremor is uncommonly reported side effect during Flx therapy³ and following its withdrawal⁴. A case of Flx induced tremors has already been reported⁵.

Numerous drugs stimulate the peripheral adrenergic system directly and produce an enhanced physiologic tremor. Physiologic tremors increase in amplitude with the use of drugs like epinephrine, norepinephrine, theophylline, beta blockers, levodopa, amphetamines, caffeine and steroids. The mechanism of action of these drugs is to act directly on peripheral beta receptors. Neuroleptics exaggerate physiologic and essential tremors and can cause tardive tremor in addition to Parkinsonism tremor.

CONCLUSION

In clinical practice, it should be kept in mind that any depressed individual with history of tremor hands, fluoxetine intake as a possible cause must be thought of since these Flx induced tremors are reversible and rarely present as a life threatening situation.

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ABNORMAL DRAINAGE OF RIGHT TESTICULAR VEIN

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Abstract: During routine dissection of abdomen it was found that in the right side testicular vein was draining into the renal vein. On further dissection right suprarenal was also seen draining into the renal vein. No other abnormality was found anywhere. Normally the right side testicular and suprarenal veins drain directly. It is described by only a few authors, and variations on the left side are common than the right side. This might be due to defective development of the subcardinal vein on the right side, which normally contributes in the formation of mainly the inferior vena cava and part of the right testicular vein. This type of variations become important during surgery of the kidney, in deciding the location of type the renal vein.

INTRODUCTION

Variation of the right gonadal vein draining in the right renal vein is reported by only a few authors as compared to the left side. Zumstein found this variation in 1.5% (4 out of 220 cases), as reported by Bergman. With very few literature citations present the knowledge of signification of these variation increases many folds as the testicular arteries and veins regulate the temperature of the testes. The knowledge of the normal as well as variation of the testicular vessels has its importance for the surgeons/nephrologists to prevent any accident.

CASE REPORT

During routine dissection of abdomen, it was found that the right side testicular vein also draining into the right renal vein. On further dissection right suprarenal vein also seen draining into the right renal vein (Fig. 1, 2 and 3). No other abnormality was found anywhere. Normally in the right side testicular and suprarenal veins directly drain into the inferior vena cava.

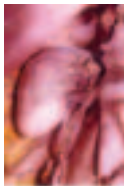


Fig. 1 Kidney in-situ



Fig. 2 Both Kidneys outside Anterior View

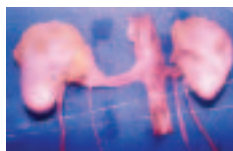


Fig. 3 Both Kidneys outside Posterior View

DISCUSSION AND CONCLUSION

Normally one testicular vein and one renal vein are present on each side of abdomen. On the left side the testicular vein opens in the renal vein, which crosses to the right side in front of the aorta and than draining into the inferior vein cava. But on the right side both testicular vein as well as renal vein open directly into the vein cava. The variations from this normal drainage pattern can be traced out to the embryological development of these structures. The supracardinal and sub cardinal sinuses developed during early embryogenesis. Persistence and regression of the right supracardinal sinus result in left gondola vein draining into the ipsilateral renal vein, and right gondola vein and right renal vein draining into the inferior vein cava. Embryo logically it has been shown in the studies that the embryonic anatomists. Gondola vein develop from the caudal part of the supranational vein draining into the supra-subcardinal anatomists and a small portion of the subcardinal vein form the Inferior

vein cava. This explains the right side gondola vein draining into the Interior vein cava. But on the left supra-subcardinal venous anastomosis form a part of the left renal vein, explaining left gonadal vein draining into the ipsilateral renal vein.

The study done in the University of Witwatersand, Johannesburg and University of Zimbabwe, Harare on the testicular arteries and veins in 150 cadavers showed variation frequently present in testicular vein, common on the left side (21.3%). In 18.8% these variations were bilateral, and most of the variations were either completely or partially duplicated. Only 1.8% of the variation in the form right testicular vein draining in the right renal vein (unilateral). 4.7% of the cases had variation associated with the origin. Das and Vasudeva (2005) studied drainage pattern of the testicular and renal vein in the 42 cadavers and they found that only one among that had the variation in the form of right testicular vein draining in the right renal vein. This form approx. 2.4%. Asala et al (2001) found 2 cases with this type of variation out of 150 cases (1.3%). According to Bergman et al Zumstein found right spermatic vein opened into the right renal vein in 4 cases out of 220. Some other variations of testicular vein are also described by different authors, like double spermatic veins instead of single testicular vein, spermatic or testicular vein draining into the subcostal veins, etc. These are also found to be veryrare kind of variation. This is the first time we have seen this type of variation.

To conclude, this type of variation may not be significant clinically, as this was not seen interfering in the normal life of the affected person. Nor any mark was seen on the cadaver showing that person underwent any surgery and he had a normal life. But knowledge of this type of variation become important for the surgeons, in case the patient has to undergo for surgery of the kidneys, suprarenal glands or for any other organ in the region, hence it needs to be investigated, keeping in the mind this type of variation to avoid any accident at time of surgery.

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Orbital Cysticercosis- A Case Report of Youngest Child Infected with *Taenia Solium*

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Abstract: Orbital cysticercosis is an uncommon disease even in endemic countries like India. Few case reports are available in litteratura. It is caused by *T. solium*. MRI or CT scan is diagnostic if scolex is seen. A child aged 3.5 year had swelling of left eye for 10 days. Investigation revealed orbital cysticercosis with no ocular and brain involvement. Child was successfully treated with oral albendazole and steroids.

INTRODUCTION

Cysticercosis is common parasitic disease worldwide including India. It is caused by infection with the intermediate stage of *Tenia solium*, also called pork tapeworm. This tapeworm has two host life cycles, human as definite host and swine as intermediate host. Pigs become infected when they eat *T. solium* eggs in human faeces, which later on develop into cysticerci in the muscle and brain. Man develops intestinal tapeworm infection after eating undercooked pork containing viable cysticerci. Humans are also intermediate host when they ingest *T. solium* eggs through faeco-oral route in areas with poor hygiene and sanitation as auto-infection or from faeces of human carriers. These eggs develop in central nervous system leading to neurocysticercosis. Brain and eye cysts caused the most morbidity, with the brain being the most common location for cysts (60-90%) of all cases and the eye being the least common (1 to 3%) Ocular cysticercosis occurs in most parts of world. In retrospective analysis of 118 surgically excised cysts over 20 years showed location as subconjunctival -63%, intraocular 26%, orbital-7% and lid 4%. We are presenting a case report of orbital cysticercosis of three years and five months old male child, youngest reported in litterature as far as we could search.

CASE REPORT

A three year and five month old male child presented with fever of 2 days, left eyes swelling for 10 days. Ocular examination showed, left eye had per orbital and ocular movements were full in both eyes. Child had 6/6 vision both eyes and fundus examination was normal. Systemic examination was normal. Investigations were as follows - Hb-12gm, TLC-11800, DLC - neutrophils 63% lymphocytes-30 eosinophils-2%, monocytes-5% , platelets 283000, PCV-33.7%, Urea-28mg, creatinine-0.5mg, Na+134, k+ - 4.8, Serum billrubin -0.9mg/dl, malaria parasite-ve, blood culture - ve. MRI orbit with contrast showed evidence of altered signal seen in the intraconal compartment of left orbit involving retro bulbar fat and laterel rectus and superior rectus muscles with hypo intense on T1 W images and heterogenous hyper intense on T2 W and FLAIR images. Small hypo intense cystic focus (4x4mm) on T1 W images is seen, which appears hyper intense on T2 and FLAIR images with surrounding hyper intense ring shadow on T2 and FLAIR images in the intraconal fat pushing the optic nerve medio-inferioli (Fig.1). A small intermediate to hyper intense focus is noted in the cyst-suggestive of scolex. On contrast - enhancement of the whole phlegmonous shadow was noted except the centre cystic component suggestive of degenerating cysticercosis (MRI). It is causing proptosis of left eye. MRI brain was normal. Elisa for cysticercosis was negative.

After taking ophthalmologist opinion child was started with albendazole-15mg/kg/day divided bid PO for 28 days. Child was also given oral corticosteroids. Eye examination showed complete relief from all signs and symptoms except some resistance to retropulsion was still noticed in left eye. Repeat orbital scan showed resolution of edema and decrease in size of swelling as observed earlier. Child was asymptomatic after completion of a albendazole treatment for four weeks.

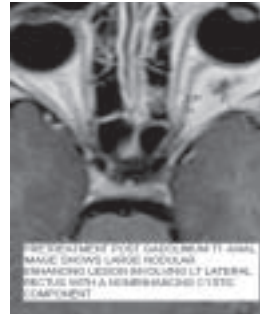


Fig. 1: Pretreatment post gadolinium T1 axial image shows large modular enhancing lesion involving LT Lateral rectus with a nonenhancing cystic component



Fig. 2: Post-treatment T1 axial - showing small modular shadow in relation to lateral rectus with minimal effect on optic nerve

DISCUSSION

Cysticercosis can occur in vegetarians eating contaminated vegetable. Orbital cysticercosis present as parasitic cysts (echinococcus, cysticercus, coenurus), abscesses, congenital cysts, etc. Diagnosis of cysticercosis requires visualization of cystic lesion with scolex in MRI or CT scan⁷. Elisa for cysticercosis can be supportive evidence for diagnosis but it can be negative. This child belong to low social economic strata and had the MRI finding of orbital cysticercosis of left eye. Most of literature showed occurrence of disease in the second half of first decade of life and youngest patient reported in one study was 5 years old⁸. In a case series of cysticercosis of the eye in south India successful treatment with oral drugs was seen in eight out of ten patients with age ranged from 12 to 55 years⁹. To best our knowledge child is the youngest of all the reported cases. Orbital cysticercosis should alert the doctor to search for infecting brain and detailed eye examination is must. This boy showed no evidence of other system involvement. Child was successfully treated with oral corticosteroids and albendazole for 28 days. Most of the cases do not requires surgical intervention.

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Committed to Nephrology...

A Case of Thyroid Storm

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Abstract: A 24 year young lady presented with complaints of back pain and left flank pain for one day, which was associated with severe nausea and vomiting. She was a known case of Graves' hyperthyroidism with very poor compliance with antithyroid medication, She was found to have thyroid storm precipitated by a urinary tract infection.

INTRODUCTION

Thyroid storm (accelerated hyperthyroidism), a rare life threatening emergency, is generally seen in patients with Graves' disease. Early detection of hyperthyroidism, due to increase availability of thyroid function tests, and improved preoperative thyroid surgery management has led to marked reduction in thyroid storm cases. The accurate incidence of thyroid storm would be difficult to determine due to the variability in diagnostic criteria. Only 1-2% hyperthyroid cases manifest as thyroid storm and the mortality range between 20-30% despite treatment. The most common precipitating cause of thyroid storm is non-concordance with prescribed antithyroid medication, which was also the case in our patients. Other precipitating factors include infection, radioiodine therapy, withdrawal of antithyroid drugs, trauma, cerebrovascular events, diabetic ketoacidosis, toxemia of pregnancy and severe and emotional stress.

CASE REPORT

A 24 year young female presented to casualty with fever and back pain associated with severe nausea and vomiting for one day. She also complained of fever, severe palpitations, poor concentration and anxiety. She had retro-bulbar pain, redness of eyes, painful eye movement and swelling around her eyelids. She has been smoking more than 10 cigarettes per day for last four years. She was diagnosed with Graves hyperthyroidism 9 month ago. She had been compliant with medication for the past two month and had also been under tremendous stress due to post graduate examination. On examination, she was found to be restless, dehydrated, febrile (10F) and her pulse was 132/mn with blood pressure 120/76mm of Hg. She had generalized abdominal tenderness, Her thyroid was bilaterally enlarged with bruit. Eye examination revealed bilateral exophthalmoses. She had proptosis of 26mm right eye and 18 mm of left eye with diplopia, without any optic involvement. She had eyelid erythema, conjunctival injection, chemosis, swelling of the carbuncle and eyelid edema. Clinical Activity Score (CAS) which describes the intensity of inflammation in graves ophthalmopathy was 7, which suggested moderately severe disease and severity of eye changes showed Class 4 using the "NO SPECS" system (Table). Her laboratory results showed suppressed thyroid stimulating hormone (TSH) less than 0.01 uIU/ml (0.34-5.6) with FT3 >30pg/ml (2.5-3.9) FT4>6ng/ml.(0.58-1.64) and serum creatinine 1.7mg/dl (0.6-1.3) Urine culture grew E.coli sensitive to aminoglycosides and nitrofurantoin. Based on diagnostic criteria of Burch and Wartofsky she had a total score of 80, which strongly suggestive of thyroid storm. The obvious precipitating cause was urinary tract infection in our patient who was non compliant to treatment. She was aggressively hydrated while awaiting laboratory result. She was started on carbimazole 20mg eight hourly (as propylthiouracil was not available

Table 1: Diagnostic Criteria for thyroid storm

Thermoregulatory	Score	Cardiovascular	Score
Temperature		Tachycardia	
99-99.9	5	99-109	5
100-100.9	10	110-119	10
101-101.9	15	120-129	15
102-102.9	20	130-139	20
103-103.9	25	140	25
>=104.0	30	Congestive hart failure	
		Mild	5
Gastrointestinal -Hepatic		Pedal edema	
Moderate	10	Moderate	
Diarrhoea		Bibasilar rales	
Nausea/Vomiting		Severe	
Abdominal Plain		Pulmonary edema	
Severe	20		
Unexplained jaundice		Atrial Fibrillation	10
CNS effect		Precipitant	
Mild	10	Negative	0
Agitation		Positive	10
Moderate	20		
Delirium			
Psychosis			
Extreme lethargy			
Severe	30		
Seizures			
Coma			

* Ascore of 45 or more is highly suggestive of thyroid storm; a score of 25 to 44 supports the diagnosis; and a score below 25 makes thyroid storm unlikely. Adapted from Burch, HB, Wartofsky, L, *Endocrinal Metab Clin North Am* 1993;22:263

immediately) and propranolol 40mg eight hourly. She was given hydrocortisone intravenously and later changed to oral steroids. Her blood pressure remained stable and her pulse rate gradually decreased with beta-blocker treatment. Based on clinical presentation and later on confirmed by result, Lugol's iodine 10 drops eight hourly was given for 3days. Amikacin and subsequently nitrofurantoin was administered. She improved clinically on day 3 and was discharged on day 7. On discharge she was afebrile, resting pulse was 80/ min, and had mild tremor. she was discharged on carbimazole and propranolol for treatment of Graves' thyrotoxicosis and oral steroid mainly for thyroid eye disease.

DISCUSSION

Thyroid storm is a rare endocrine emergency but all clinicians should

be aware of its clinical features and treatment so that morbidity can be avoided. It might be difficult to distinguish between the thyroid storm and infection in thyrotoxic patients as tachycardia and high fever may present in both. The definitive criteria of thyroid storm laid down by Burch and Wartofsky⁵ are useful (table). Thyroid crisis may be mistaken for sepsis, heat stroke, acute gastrointestinal infection or IHD especially in undiagnosed thyrotoxic patients. The manifestation of thyroid eye disease may coexist or may worsen with thyroid storm as in this case.

Urgent thyroid function test is a confirmatory diagnosis. Treatment of thyroid storm should not be delayed if there is a high index of suspicion. Hyperglycaemia, leucocytosis, hypercalcemia may coexist. Deranged liver function tests mainly raised alkaline phosphatase, could be due to increased osteoblastic activity in response to high bone resorption. Serum thyroid hormone level would typically show hyperthyroidism but due to sudden rise of thyroid hormone secondary to precipitating factors, patients can no longer adapt to the sudden metabolic stress.

Treatment of thyroid storm includes correction of severe thyrotoxicosis, precipitating illness and associated active thyroid eye disease. Patients should be monitored in ICU in the early phase. In this case, the patient required intravenous fluid as she was dehydrated but in cases with congestive cardiac failure, diuretics may be required.

Beta-blockers control adrenergic systems, thionamides block new hormone synthesis, iodine solution blocks the release of thyroid hormone and glucocorticoids reduce T4 to T3 conversion. Beta-blockers should be used cautiously if congestive cardiac failure is present. Among thionamides, propylthiouracil is preferred over methimazole as it also blocks peripheral T4 to T3 conversion. Iodination radio contrast iopanoic acid can also be used although it is not easily available.

Thyroid storm can be diagnosed based on Burch and Wartofsky⁵ scoring system. All diagnosed cases should be managed with anti thyroid drugs, beta blockers and iodine solution along with supportive care preferably in Intensive Care Unit.

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LITERATURE REVIEW

Therapeutic Plasma Exchange. *Arghya Majumdar, Head, Dept. of Nephrology, AMRI Hospital, Kolkata*

Therapeutic plasma exchange (TPE) is an extracorporeal blood purification technique designed for the removal of large molecular weight substances from the plasma. The basic premise of TPE is that removal of these substances will reduce further damage and may be removed by TPE include pathogenic autoantibody of (e.g. anti- glomerular basement membrane), immune complexes (e.g. systemic lupus erythematosus (SLE). Cryoglobulins, myeloma light chains, thrombotic factors cholesterol containing lipoproteins and other putative toxic mediators.

The Canadian Apheresis Group reported that the five most common indications for therapeutic plasma exchange were thrombotic thrombocytopenia purpura myasthenia gravis, chronic inflammatory demyelinating polyneuropathy, Waldenström's macroglobulinemia and Guillain-Barre Syndrome. The indication which a Nephrologist would more commonly encounter TTP/HUS, cryoglobulinemia, Goodpasture's syndrome, ANCA associated vasculitis Acute kidney injury (AKI) due to multiple myeloma, ABO incompatible kidney transplants, focal segmental glomerulosclerosis (FSGS) (peri- transplants), Antibody mediated acute rejection (C4d+ve), etc. A review of the reported complications from over 13000 plasma exchange treatments found that adverse reactions were substantially more common with fresh frozen plasma (FFP) than with albumin replacement. The common complications are hypotension transfusion related acute lung injury (TRALI), citrate- induced hypocalcemia and metabolic alkalosis, coagulation problems, infection, hypokalemia, drug removal, etc.

The new techniques of TPE include cryofiltration heparin – mediated extracorporeal low- density lipoprotein (LDL) fibrinogen precipitation (HGLP) apheresis thermofiltration, extracorporeal immunoadsorption and extracorporeal photopheresis.

The AMRI experience (2001-09), 29 cases : TTP-4 (one with HIV) Goodpasture's syndrome -2 Guillain- Barre syndrome -9 SLE with acrocyanosis-1 Adult atypical D-HUS-1, Myasthenic crisis -5, ADEM – 1, ANCA associated systemic vasculitis with RPGN and DAH-3

Laparoscopic Kidney Retrieval in Donor with an Extended Criterion : Assessing the Safety and Outcome.

Arvind R. Ganpule, Mahesh Desai and Shashikant Mishra

Ann Natl Acad Sci (India), 2008, 44(3):165-175.

The term marginal kidney donor/ extended donor criterion is not clearly defined. In the article we assess the safety and outcome of laparoscopic donor nephrectomy (LDN) in donor with an extended criterion. A retrospective analysis of our database was done between normal donor (group 1) and donors with extended criterion (group 2). The parameters analyzed were pre and post operative serum creatinine in donors and recipients, operative time, warm ischemia time, analgesia requirement in donors and impact of extended criteria on recipient outcome. Group I and group II had comparable nadir at 1 year in recipient. Donor with BMI more than 30 kg/m required more number ports and hospital stay. Recipients nadir creatinine was comparable in extended and non extended indication donors. In our study LDS was found to be safe, feasible and efficacious in donor with extended indication such as old age, BMI more than 30, multiple vessels and anatomical anomalies. Recipient outcome for donors with normal vs. extended criterion was comparable at one year follow up. All donors with extended criterion levels with maintained nadir stable creatinine at two year follow up. Long term follow up would be of interest.

Submandibular Sialolithiasis Analysis of 4 Case Reports

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Abstract: We are reporting cases of submandibular modalities of conventional radiography ultrasonogram (USG), Computed Tomography (C.T. scan) subsequent treatment approach.

INTRODUCTION

Salivary gland calculi are a common occurrence in the salivary glands. The majority of the sialoliths occur in the submandibular gland or its duct and cause chronic infection. It's estimated that it affects 12 in 1000 of the adult population. Males are affected twice as much as female. More than 60% in the submandibular gland or its duct, 6% in the parietal gland and 2% in the sublingual gland. Salivary gland disorders are relatively common. Sialolithiasis is the main cause of obstructive salivary disease being involved in 66% cause and accounting for about 50% of major salivary gland disease. Incidence peak occurs between the ages of 20 and 60 years, and it is uncommon in children as only 3% of all sialolithiasis cases occur in the paediatric population. The striking difference between parotid and submandibular stones is partially related to the ascendant and sharper angled duct system of the submandibular gland and mainly mucous type of secretion, tortuous course of Wharton's duct higher calcium and phosphate levels and, the dependent position of the submandibular gland, which leave them more prone to stasis. Patients with obstructive sialadenitis present with a history of recurrent painful periprandial swelling of the involved gland, best known as the meal-time syndrome. Which is often complicated by recurrent discharge at the orifice of duct. The traditional aetiopathogenetic factors associated with stone formation are obstruction, xerostomia, dehydration, increase in salivary pH associated with oropharyngeal sepsis and impaired crystalloid solubility; physiologically, microliths may be detected following precipitation within redundant secretory vesicles which become symptomatic and act as a nidus. In addition to these classic hypotheses, Marchal et al. have recently suggested a retrograde theory in lithogenesis, according to which a retrograde migration of foods, or bacteria or foreign bodies from the oral cavity to the duct system may lead to stone formation. Salivary glands with sialolithiasis are frequently enlarged, tender and bimanually palpable along the path of the duct may confirm the presence of a stone. We are analysing 4 cases of submandibular sialolithiasis reported to our department of oral medicine and radiology, with their diagnostic imaging and treatment plan.

CASE REPORTS

Case 1: A 55 year old female patient presented with complaints of recurrent pain on left side of neck region and intraorally for past 3 months and swelling for past 2 years which increase in severity of pain and swelling before meal and during meals followed by gradual relief by itself. On examination patient was afebrile and of normal built. A mild diffuse swelling was present on left submandibular region which was firm and tender on palpation. Intraorally on left side of the floor of the mouth solitary swelling was present with erythematous mucosa which was firm and tender. Submandibular swelling was bimanually palpable, and on milking of gland pus discharge was seen from ductal opening of Wharton's duct (Fig.1). History and clinical examination was suggestive of left chronic submandibular sialadenitis. On further imaging with mandibular occlusal radiograph showed a well defined radiopaque structure 1x1 cm lingual to left side of mandible (Fig. 2) and to rule out any stone in showed mild radiopacity of 0.5x0.5cm in mandibular submandibular region by placing transducer extraorally of 5-10 MHz which revealed one hypoechoic region of size 1x1.2 cm and another hypoechoic region on left side near hilum of submandibular gland of size 0.5x0.5cm with ductal dilatation. Contrast enhanced C.T. scan of axial and



Fig. 1: Pus discharge on milking of submandibular gland.



Fig. 2: Mandibular occlusal radiograph

coronal section of submandibular region confirm the same. Based on above investigations diagnosis of left side submandibular sialolithiasis was arrived at. As sialolith was present in ductal region, treatment plan was surgical removal of sialolith.

Case 2: A 56 years old male patients came to our department with the complaint of pus discharge intraorally for 25 days history of swelling without pain on left neck for past 15 years which increase in size for past 3 month. On examination extraorally swelling was seen on left side submandibular region which was tender, firm and bimanually palpable. Intraorally firm swelling was present on same side sublingually with pus discharge from Wharton's duct. Increase in pus discharge occurred with milking of gland. Mandibular occlusal radiograph did not show any pathology while left side lateral oblique of mandible showed a well defined radio-opaque structure at angle of mandible. USG showed 2.8x1.4x1.3 cm altered echoic regions near left submandibular gland with post acoustic shadowing suggestive of radio-opaque mass and C.T. scan confirmed the presence of hyperdense area measuring 2x1.5cm at the hilum. Because of posterior positioning of sialolith treatment plan was sialadenectomy.

CASE III

A 37 years old male patients with swelling intraorally for past 2 year with pus discharge for past 2 month with pain. On examination one hard swelling was seen on left side sublingual region. Mandibular occlusal oblique of mandible Orthopantomogram (OPG) revealed one radio-opaque structure left side sublingually and small multiple radio-opaque structure near hilum region. USG showed 2 hypoechoic one in anterior region sublingually and one posterior near submandibular gland region subsequently C.T. scan revealed 2 hyperdense regions on left side sublingual area suggestive of small multiple sialolith surgical removal of sialolith. Biochemical analysis was positive for calcium carbonate and phosphate and negative for uric acid and oxalate.

CASE IV

A 45 years old male patients came to our department with complaint of extra oral recurrent swelling on left side of neck region for past 8 month and complaint of pain which was aggravated during meals. True mandibular occlusal radiograph revealed no evidence of any pathology while left side lateral oblique view of mandible revealed single oval shaped well defined radio-opaque structure on left angle region of mandible. USG showed hypoechoic region 4x4x3cm extending to submandibular gland region and C.T. confirmed submandibular sialolithiasis. Treatment plan was sialadenectomy.

DISCUSSION

Sialolithiasis can obstruct the secretory duct, resulting in chronic retrograde infection because of a decrease in salivary flow. Clinically, it can present as symptomatic or asymptomatic or both intermittent swelling and pain with eating and signs of infections. As many as 9% of patients have recurrent sialolithiasis and about

10% of patients with nephrolithiasis suffer from sialolithiasis. If stone is found at least a one in four chance exists that others are composed of hydroxyapatite. The chemical composition is calcium phosphate and carbonate, Gout is the only systemic disease which can cause calculi of uric acid composition 50% of parotid gland sialoliths and 20% of submandibular gland sialoliths which are poorly calcified. This is clinically significant as these sialoliths will not be detected radiographically. The traditional diagnostic approach consists of standard radiography which does not reveal radiolucent, intraglandular or small stones in about 20% of cases and computed tomography which is limited by the fact that the stone shadow can be occluded by thick radiological slices, although focussed helical CT with 1-2mm may pick up even tiny calculi.

Ultrasonography currently represents an excellent first line diagnostic technique; it reveals ductal and highly mineralized stones of at least 1.5mm size with accuracy of 99%. Conventional sialography in which dye is injected in retrograde way through ductal opening followed by radiography provides high resolution images of salivary ducts but it is contraindicated in acute infections, small stones present near ductal opening. T2 weighted MRI sequences which allow consistent and accurate assessment of salivary glandular calculi. Recent advances in optical technology have led to the development of sialoendoscopy a new diagnostic mean of directly visualizing intra ductal stones which allows complete exploration of duct including shockwave lithotripsy, sialoendoscopy, interventional radiology, endoscopically video-assisted trans-oral and cervical surgical retrieval of stones, and botulinum toxin therapy.

RECOMMENDED READING

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Epigenetics-The Rising Era.

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Abstract: The term epigenetics refers to heritable changes in phenotype (appearance) or expression of genes caused by mechanisms not involving changes in the underlying DNA sequence. The term "epi" in Greek refers to "in addition to" or "on top of". So epigenetics is something in addition to the traditional molecular basis of inheritance (genetics). Epigenetic changes remain through cellular divisions for the remainder of the cell's life and may also last for multiple generations, without changes in the underlying DNA sequence of the organism¹, instead, non-genetic factors cause the organism's genes to behave differently². It can do so because the epigenetic state varies among tissues and during a lifetime, whereas the DNA sequence remains essentially the same. This concept of cellular adaptation to a changing Epigenetics, has incorporated the study of non-DNA sequence-related heredity, at the epicenter of modern medicine because it can help to explain the relationship between an individual's genetic and background, the environment, aging and disease. The common disease genetic and epigenetics (CDGE) model provides an epidemiologic framework that can incorporate epigenetic with genetic variation in the context of age-related susceptibility to disease. Under CDGE, the epigenetics program can modify the effects of deleterious genes or may be influenced by an adverse environment. Thus, including epigenetics into epidemiologic studies of human disease may help explain the relationship between the genome and the environment and may provide new clues to modifying these effects in disease prevention and therapy.

INTRODUCTION

Epigenetics has many definitions, which have changed over time. In simple terms it is a specific molecular phenomena occurring in organisms³. The term was coined by CH Waddington in 1942. When Waddington coined the physical nature of genes and their role in heredity was not known; he used it as a conceptual model of how genes might interact with their surroundings to produce a phenotype. Robin Holliday defined epigenetics as the study of the mechanisms of temporal and spatial control of gene activity during the development of complex organism⁴. Thus epigenetic can be used to describe any aspect other than DNA sequence that influences the development of an organism. The modern definition of epigenetic is modifications of the DNA or associated proteins, other than DNA sequence variation, that carry information content during cell division⁵. The epigenome is a parallel to the world to genome and refers to the overall epigenome state of a cell. The phrase genetic code has also been adapted to the epigenetic code which describes the set of epigenetic features that create different phenotypes in different cells. The epigenetic code represents the total state of cell, with the position of each molecule accounted for; more typically, the term is used in reference to systematic measures of specific, relevant forms of epigenetic information such as the histone or DNA methylamine.

MOLECULAR BASIS OF EPIGENETICS

The molecular basis of epigenetics is complex. It involves modification of the activation of certain genes, without altering the basic structure of DNA. In addition the chromatin of DNA may be activated or silenced. This means that each cell in the body has the same instruction manual, but different cell types use them differently. Epigenetic changes are preserved when cells divide. Most epigenetic change only occurs within the course of one individual organism's lifetime, but some epigenetic changes are inherited from generation to the next⁶. Specific epigenetic processes include: (1) Paramutation (2) Imprinting; (3) Reprogramming; (4) Transvection; (5) X-chromosome inactivation; (6) Positional effect; (7) Gene silencing; (8) Carcinogenesis; (9) Teratogenesis; (10) cloning

Epigenetic research uses a wide range of molecular techniques like: (1) chromatin immunoprecipitation, (2) fluorescent in situ hybridization, (3) methylation-sensitive restriction enzymes, (4) DNA adenine methyltransferase (DamID) and bisulfite sequencing, (5) bioinformatics (computational epigenetic)

THE MECHANISMS OF EPIGENETICS

The basic mechanisms on which the whole epigenetic science revolves are (a) DNA methylation and chromatin modification; (b) RNA transcripts with encoded proteins; (c) Prions; (d) Structural inheritance system.

A. DNA methylation

Basically, DNA methylation is a covalent addition of a methyl (CH) group to the nucleotide cytosine. DNA methylation during cell division in mammals only at dinucleotide C-G (CpG) by virtue of the enzyme DNA methyltransferase I. This occurs because during semiconservative DNA replication, a methylated CpG on the parent is partnered with a newly synthesized unmethylated CpG on the daughter strand. DNA methyltransferase I searches out this hemimethylated DNA and places a new methyl group on the daughter CpG⁵. An important environmental connection to epigenetics is that the source of methyl groups in this reaction is methionine an essential amino acid, that is converted to a biologically active methyl donor state through a pathway that involves folic acid.

A second well-studied example of epigenetic mechanism is chromatin modification. Chromatin modification refers to covalent modification of the histone protein that makes up the nucleosomes around which the DNA double helix is coiled approximately 2 turns of 200 base pairs, including the linker DNA between each nucleosome. These chemical modifications also include methylation but in this case involve the amino acids arginine or lysine as well as phosphorylation of serine, acetylation of lysine, and ubiquitinylation of lysine⁷. Unlike DNA methylation, the mechanism of maintaining chromatin modification during cell division is not well understood because no enzyme has yet been identified that recognizes chromatin modification from the parent cell and reproduces them in the daughter cell⁵.

Because DNA methylation and chromatin remodeling play a central

role in many types of epigenetic inheritance, the “epigenetic” is sometimes used as a synonym for these processes. However, this can be misleading. Chromatin remodeling is not always inherited and not all epigenetic inheritance involves chromatin remodeling⁸.

B. RN transcripts and their encoded proteins

Sometimes a gene when become active, transcribes a product that either directly or indirectly maintains the activity of that gene.

Example Hnf4 and Myo D enhance the transcription of many liver- and muscle-specific genes, respectively their own, through the transcription factor activity of the proteins they encode.

Other epigenetic changes are mediated by the production of different splice forms of RNA or formation of double-stranded RNA (RNAi). Descendants of the cell in which the gene was turned on will inherit this activity, even if the original stimulus for gene-activation is no longer present. A larger amount of RNA and protein is contributed to the zygote by the mother during oogenesis or via nurse cell, resulting in maternal effect phenotypes. A smaller quantity of sperm RNA is transmitted from the father, but there is recent evidence that this epigenetic information can lead to visible change in several generations of offspring.

C. Prions

Prions are infectious proteinacious particles. These are capable of forming an infection conformational state known as a prion are more loosely defined by their ability to catalytically convert other native state version of the same protein to an infection conformational state. It is in this latter sense that they can be viewed as epigenetic agents capable of inducing a phenotypic change without a modification of the genome⁹.

D. Structural inheritance systems

In ciliates such as tetrahymena and paramecium, genetically identical cells show heritable differences in the patterns of ciliary rows on their cell surface. Experimentally altered patterns can be transmitted to daughter cells. It seems existing structures act as templates for new structures. The mechanisms of such inheritance are unclear, but reasons exist to assume that multicellular organisms also use existing cell structure to assemble new ones¹⁰.

EPIGENETICS AND HUMAN DISEASE

1. **Colorectal cancer** due to loss of DNA methylation, This hypomethylation leads to abnormal activation of cancerous genes, along with genetic instability and chromosomal rearrangements¹¹.
2. **Acute lymphocytic leukemia** due to abnormal histone modification and excess of chromatin factors such as trithorax group proteins (ALL1) that promote gene expression.
3. **Metastatic cancers** due to polycomb proteins (EZH2) that suppress gene expression⁵.
4. **Lung cancer** due to LOI in PEG/MEST gene.
5. **Glioma** due to LOI in PEG3
6. **Wilm's tumor** due to LOI in IGF2.
7. **Rett syndrome** which is a X-linked disorder to females. It is caused by mutations in methylcytosine binding protein-encoding gene2 (MECP2). This epigenetic mechanism involves chromatin modifying genes. In this disease initially girls are born normally, but they gradually develop inability to talk and walk, movement disorder, dementia and finally death¹².
8. **ICF Syndrome** Immunodeficiency, chromosomal instability and facial anomalies is caused by mutation in de novo DNA methyltransferase (DNMT3B)¹³.
9. **Beckwith - Wiedemann syndrome (BWS)**, which is characterized

by prenatal overgrowth, middle abdominal wall defects, ear creases or pits neonatal hypoglycemia, and a high frequency of Wilms and other embryonal tumors, such as rhabdomyosarcoma and hepatoblastoma. BWS is a paradigm for understanding the epigenetic changes in several genes. Just as Li-Fraumeni is a paradigm for understanding the traditional genetic of cancer because it involves familial transmission of mutations in the P53 gene. The idea for both BWS and Li-Fraumeni is that what occurs constitutionally in these well-defined syndromes may also occur as somatic alterations in common tumors, a principle of conventional cancer epidemiology pioneered by Knudson^{14,15}. The basic epigenetic defect is LOI (loss of imprinting) of insulin like growth factor (IGF2).

10. **Angelman syndrome and Prader - Will syndrome** - both can be produced by the same genetic mutation chromosome 15 q partial deletion, and the particular syndrome that will develop depends on whether the mutation is inherited from the child's mother or from their father¹⁶. This is due to the presence of genomic imprinting in the region.

FUTURE PROMISES

If we peep into the future of epigenetic application, then first of all we have to answer some basic questions.

- (1) How is epigenetic memory established and maintained
- (2) What are the determinations in chromatin remodeling that maintain epigenetic state?

Landmark experiments suggest that subnuclear compartmentalization is the most important ingredient of chromatin state. Most studies till date have been targeting the nucleosome-the promoter, but it is suggested that full understanding of carcinogenesis may require elucidation of the role in specific topographic domains (nuclear periphery).

This hope of cancer epigenetics may lead to a breakthrough revolution in cancer prevention and management, because of the fact that epigenetic changes are more malleable than conventional genetic mutations.

CONCLUSION

Humans have just started to explore the unfathomable depths of Epigenetics, which delves deeper into the mysterious genetic onion, involving information stored in the proteins and chemicals that surround and stick to DNA. A five-year Human Epigenome Project to map all the DNA methyl 1 sites was launched in October 2003 in the UK. Finally, the fact that epigenetic anomalies can be reversed makes then inviting targets for a whole new generation of medicine.

This may be the first time we have heard of epigenetic. Clearly, it won't be the last.

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Assessment of Fracture Risk in Osteoporosis

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Abstract: The study of risk factors for any disease help in understanding the pathogenesis and mechanisms of disease occurrence. Risk factors may also be used to predict individual who are risk with a view to targeting intervention or preventive measures, specially in patients of osteoporosis.

PREDICTORS OF FRACTURE RISK

Osteoporosis is a common and disabling disorder; its incidence is increasing in most developing countries. The major **predictors** of **osteoporotic fracture risk** are bone mineral density (BMD), biochemical markers of bone turnover, quantitative ultrasound (QUS) and clinical risk factors.

BONE MINERAL DENSITY

Reduction in bone mass assessed using bone mineral densitometry, is an important determinant of future fracture risk. Site specific measurement show stronger gradients of risk for fracture than measurement made elsewhere. In a large meta-analysis looking at prediction of various fracture type using measurement made at the hip, wrist and spine being for hip BMD predicting hip fracture (table)¹.

Table: Relative risk of fracture in women for every 1 SD decrease in bone mineral density below the age adjusted mean.

Site of measurement	Forearm Fractures	Hip fractures	Vertebral fractures	All fractures
Distal	1.7(1.4-2.2)	1.8 (1.4-2.2)	1.7 (1.4-2.1)	1.4 (1.3-
Hip	1.4 (1.4-1.6)	2.6 (2.0-3.5)	1.8 (1.1-2.7)	1.6 (1.4-1.8)
Lumbar spine	1.5 (1.3-1.8)	2.3 (1.9-2.8)	2.3 (1.9-2.8)	1.5 (1.4-1.7)

Source: Marshall et al 1996

A normal BMD does not necessarily mean that a fracture will not occur and conversely a low BMD not necessarily mean a fracture will occur. In the Rotterdam study, for example, mole 44% of all non-vertebral fracture occurred in women with a T- score below - 2.5^{2,3}.

BIOCHEMICAL MARKERS

Markers of bone formation include total alkaline phosphates, bone alkaline phosphates, osteocalcin and the procollagen properties of type 1 collagen. Markers of bone resumption include hydroxyproline, pyridine cross links and their associate peptides. Prospective studies have shown a fairly clear association between increased bone and fracture risk, an effect in independent of BMD^{4,5,6}.

ULTRASOUND MEASUREMENT

Skeletal status can be assessed using QUS method. The heel is the most widely used site and broadband ultrasound attenuation and of sound the most commonly assessed parameters. Data from several prospective that the unit change in these measures in linked with an increase fracture risk. In the EPIDOS study, the risk of hip fracture increase by a factor of 2.1 for each SD decrease in speed of sound in speed of sound⁷.

CLINICAL RISK FACTORS

Age: Some of the age-related changes in fracture risk are related to a reduction in BMD; however, both age and decreasing BMD add

independently to fracture risk. In the Rotterdam study, when comparing an 80- year old women with average bone density with a 60 year old women the RR for hip fracture was 13.6; age contributed only 7.1 to risk while the age-related decline in bone density contributed only 1.9 for men the result were broadly similar⁸. For given BMD level (female neck) the absolute 10 year risk of sustaining any osteoporosis. Fracture increase by a factor of two threefold between those in the younger in the oldest age groups⁹.

Fracture history: The result from a large meta-analysis of published studies are presented in table 2¹⁰ among women, for both wrist spine fracture the risk of future hip fracture is increase by a factor of approximately twofold. The strength of prediction is most marked for a prior and subsequent vertebral fracture. A pre-existing vertebral fracture in linked with number a fourfold increase risk of sustaining a future vertebral fracture, with the risk increase with number of baseline spine fracture^{11,12}.

In a meta-analysis of prospective population-based studies a previous fracture, osteoporosis fracture and hip fracture (RRs 1.85-1.86) in men and women¹³. Skeletal factors such as changes in micro-architecture with rapid bones loss following fracture/immobilization may also play a part.

Family history: In a meta-analysis of prospective population surveys a parental history of any fracture was associated with a modest but significantly risk of any fracture (RR 1.18) and hip fracture RR 1.49) in men and women¹².

Smoking: In meta-analysis of prospective population surveys current smoking was associated with an increase risk any fracture (RR1.84). Past cigarette smoking was linked with an increase risk of fracture, through the RRs were lower than for current smoking.

Low body mass index: Low weight or body mass index (BMI) is a well document risk factor for future hip and spine fracture white a high BMI appears protective^{15,16}. Increasing BMI was associated with a lower risk of any fracture (RR 0.98)¹⁷.

Steroid use: Glucocorticoids are an important determinant of bone loss and fracture¹⁸. The risk of fracture increase rapidly following the start of corticosteroid therapy (within 3-6 month) and decreases after therapy is stopped. Risk increase with the dose of steroids used^{18,19}. There is evidence that for a given level of bone mass the risk of fracture is greater among those taking corticosteroids suggesting an effect that is independent of BMD²⁰.

Other clinical risk factors : Other clinical risk factors for osteoporosis have been identified including amenorrhea hypogonadism (men), poor visual, neuromuscular disorder, excessive alcohol consumption, immobilization, low dietary calcium intake and vitamin deficiency. Various disease states are linked also with an increase risk of osteoporosis, including rheumatoid arthritis. Inflammatory bowel disease, malabsorption syndrome, primary hyperparathyroidism, hyperthyroidism and anorexia nervosa. Fracture linked with an increase risk of falls are linked with an increase fracture risk

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particularly in the elderly these include impaired mobility, visual impairment and various drugs sedatives.

FRAX SCORE

The National Osteoporosis Foundation has released a 2008 update to the NOF guidance published in 1999. The guideline, which are evidence based, provide recommendation for screening counseling and treatment of osteoporosis. The fracture risk assessment tool developed and evaluated by Prof. John A. Kanis and colleagues from the WHO Collaborating Centre for Metabolic Bone Disease at the University of Sheffield Medical School in the UK and is underpinned by the WHO Technical Report entitled. Assessment of Osteoporosis at Primary Health Care Level.

The World Health Organization has developed a new risk assessment tool - FRAX SCORE to identify individual at high risk of osteoporosis fracture. The current standard which bases treatment decisions largely on bone mineral density measurement and has proven to be specific, but not sensitive for the identification of patients at high risk of fracture. Because nearly 50% of postmenopausal women in the community over the age of 50 years who an osteoporosis fracture do not have osteoporotic defined by a BMD test, and because of the limited availability of BMD in many countries, clinical risk fracture factors were added to BMD to identify patients at high risk for osteoporotic fracture.

FRAX integrates the future osteoporotic fracture risk associated with clinical risk factors with that associated with femoral neck BMD. BMI may be used when BMD is unavailable. BMI and BMD would not be in the same individual. The incident rates of fracture are country specific and provide the clinical the 10 year probability of hip fracture and 10 year probability of major osteoporotic fracture (clinical vertebral, forearm, hip and shoulder). FRAX is currently being validated in additional longitudinal cohort databases. It is anticipated that in the latter half of 2009, the FRAX will be available as a software update for DXA equipment. The FRAX provides an estimated fracture risk in given individual but does not identify the level of fracture risk at which treatment should be started (intervention). The intervention threshold decision is based on the willingness of a given country or region to pay for the treatments recommended.

LIMITATIONS

Like any other initial evaluation, limitation abound which includes:

- 1) The FRAX model is a model in progress. It does not include spinal BMD data or bone turnover markers, as bone marker data is not available from of the countries that contribution longitudinal cohorts to generate to the FRAX
- 2) FRAX does not include data on BMD measured at the peripheral skeletal sites.
- 3) Most patients were women. And data on ethnic groups are limited
- 4) The FRAX cannot be used in patients who have been treatment with osteoporosis medications since the probability of fracture may be overestimated.
- 5) Patients being assessed osteoporotic fracture risk may not be to make a treatment decision based on a 10 year probability of a fracture, although the one-year probability would be 10% of a ten-year probability.
- 6) The main limitation is that no large studies have been done on the Indian population till date to evaluate the bone mineral density and as such we are still dependable on the data generated by evaluation of the Caucasian race. BMD measurement alone fails to identify a high number of subjects who subsequently develop fracture. The addition of clinical risk factors may indeed be an improvement in risk factor assessment. While FRAX provide a method to evaluate fracture risk with and without BMD to use for global health, understanding exactly what level of fracture risk is appropriate for therapeutic intervention probably requires additional

research.

The tool, previously available for China, France, Italy, Japan, Spain, Sweden, Turkey, UK, and the USA is now extended for use in Austria, Germany and Switzerland. It is expected that FRAX will be available for several other countries before the end of the year. In their most sophisticated form, the FRAX tool is computer-driven and is available on website <http://www.shef.ac.uk/FRAX/>

CONCLUSION

The diagnosis of osteoporosis is currently based on assessments of BMD. These are however, additional factors that influence fragility and fracture risk that are not captured by BMD. The development and application of such assessment tools in clinical practice should help reduce the morbidity linked with the disease.

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Family Planning Practices in Women of Reproductive Age Group

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Abstract: The need for studies to understand the factors determining the fertility rates and family planning practices & barriers of contraceptives in particular Communities is essential to gather more specific knowledge about factors determining family planning acceptance for making necessary modifications in Reproductive & Child Health (RCH) programmer to suit their needs. Objective of the study were (1) to assess the Knowledge, Attitude & Practice on family planning among women of reproductive age group in east Sikkim. (2) to determine the barriers of contraceptive use among them. This is a hospital-based cross-sectional study. 443 women of reproductive age group (15-44) years, who gave informed verbal consent to participate in this study. Data collected were tabulated and analyzed using the statistical package of SPSS (Statistical Majority of women in study population had adequate knowledge regarding family planning (98%) and contraceptives (94.2%). Majority (54.4%) had gained information from media, Majority (98%) believed that contraceptive use was beneficial but only 55.2% had used contraceptives in past and 84% of them were satisfied with the use. 62% were currently using contraceptives. Among the users of contraceptives 37.9% were using oral contraceptive pills and 31% were using condoms.

Key words: Family Planning, Contraception, Reproductive

INTRODUCTION

India is the second most populous country of the world. The Govt. of India Launched a family welfare programmed in 1950' to accelerate and social development by reducing the population growth. But this programmed has met with only marginal success This is because people of India being multi-linguistic, multi-religious and multiethnic, have different levels of awareness and acceptance of methods of family paining acceptance and particular communities has bees felt, so then more specific knowledge can be gained about factors determining family planning acceptance, which can be then be used for developing suitable programmers for them^{1,2}. This study aimed to know the reasons for these unmet needs and factors affecting the outcome of family planning program and to have a better understanding of the situation in order help government in formulation of polices and modify its approach in east sikkim.

MATERIALS AND METHODS

A cross sectional descriptive study was done in 443 woman of reproductive age group (15-14) years, attending two hospitals, during the month of January 2004 to march 2005.

Inclusion criteria: All women in the reproductive age group of (15-44) years, visiting STNM and Central Referral Hospital, who were willing to participate in this study. Were exclusion Purposive Sampling with snowball technique and attitude regarding family planning methods, and contraceptives, after obtaining informed verbal consent from the participants, data ware collected through the interview technique?

Statistical analysis: Data collected were tabulated and analyzed using the statistical package of SPSS (Statistical package for Social Sciences) version 7.5 the results were expressed in terms of proportions

RESULTS

Among the 443 women in the study group more then 80% were in the age group of 15 to 34 majority them were Hindus (76.7%) followed by Buddhist (14%) Muslim and Christian formed a minority.

80% of respondents were liteated, 95.7% were married and 80% were housewives. Majority of the respondents had adequate knowledge about family planning methods and only 2% were unaware about these. Over fifty percent of women got information about contraceptives from mass media. According to most of the women, family planning meant having small and happy family and few of them said it was for birth spacing and avoiding unwanted pregnancy. Almost all (95%) of them had heard about oral contraceptive pills, 74% of the them had heard about condoms and 72% were aware about Copper T, and over half (67%) of them had heard about tubectomy and nearly one third (34%) were aware vasectomy. Most of them knew that contraceptives were available in Government Hospital (62%) and medical shops (52.55%) Though 83% of respondents believed that contraceptives were used only for preventing unwanted pregnancies, but 30% knew they were also used for birth spacing and less than 10% knew that condoms could prevent sexually diseases.

In this study, 44.6% women were not using contraception, but were willing to any one of the family planning methods in future and over 90% of women believed that family planning was beneficial and would like to encourage their friends and relatives to family planning. In this study, 215 women had used contraceptives in the past and 85% among them were satisfied with contraceptive that had used 62% were still using contraceptives and were satisfied with the contraceptives they were presently using. Among the user of contraceptives, 37.9% had used oral pills 31% the barrier method (condom), 27% undergone Tubectomy and 24% had used Copper T. Though 59% women and had chosen their own preferred contraceptive method themselves because they found it comfortable and to use, but the remaining 41% had used the contraceptive as their husband had recommended and preferred the method.

Though they had adequate knowledge, 30% women did not use any contraceptive method as they were planning pregnancy, 15% were apprehensive of side effects of contraceptives and 10% were currently pregnant.

DISCUSSION

In the present study more 80% were in age group of 15 and 34 years and were literate. The age group characters were similar to the study conducted by Reema Shrivastava et al in Ghorakhpur¹, but in their study nearly half of the women were illiterate and from rural background. According to another study conducted by Padma Monahan et al³, on fertility Pattern and family planning practices in a rural area in Dakshina Kannada in 2003 concluded that majority (52.4%) of the women using contraception were in the age group of (15-34) years.

A survey conducted in Manipur about family planning knowledge, Attitude and practice by Donati Serena et al in 2003 concluded that the use of modern family planning methods increase with female sterilization prevalence declines sharply with women's education, level. Muslims had lower rates of contraceptive use (17%) than Hindus (62%) even after controlling for the education. This is also corroborated by this study wherein majority of user were Hindu 76% compared to Muslims.

Here 95.8% of the subjects knew about the oral contraceptive pills 74.2% about condoms, and 72% about copper T and, 67% had knowledge about tubectomy, 34% about vasectomy. Compared to 82% women in Gorakhpur who were aware about female sterilization, while only half were aware about vasectomy. IUCD (61%) was the most know temporary method followed by OC pill (60%) and condoms (50%). 17% were not aware of any form of contraception as against in Sikkim. In present study done at Gorakhpur 55% had never used contraception.

In a survey conducted in Manipur state by Donati Serena et al, permanent method of contraception was accepted by 70.7 of the women with 3 or more children and only 29.3% accepted this method with 1 or 2 living children. The study done in fisherman in Tamil Nadu by Rao G. et al revealed that almost two-fifth of the respondents had ever used some type of contraception during their married life. Among the method, sterilization was the most accepted method. This was in conformity with the statements that this is an irreversible and

permanent method; couples prefer to adopt it after they have reached the desired family size.

Another study on acceptability of contraception method urban eligible conducted in Imphal, Manipur by Singh RKN et al conducted that more number of couple had adopted permanent family planning method (Vasectomy and tubectomy) in 7.75% comparison to temporary method (5.89%) and compared to vasectomy (1.19%). Percentage of tubectomy was greater (12.37). Among the temporary method maximum numbers of couples had adopted IUCD as spacing method (15.20) followed by CC (1.56) and OP (0.95%)

CONCLUSION

This study highlights that knowledge and awareness does not always to the use of contraception. Also one need to understand the level of awareness and practices in the community before implementing the family planning programmed. These is a need to educate and reduce the couple along with improvement. In family planning service to promote the contraceptives and reduce the increase in population. Sustained efforts on dissemination o information through mass are required since is more easily accessible. Providing education to the teenagers and increasing communication with couple in reproductive ages and improved family welfare service along with regular availability of contraceptive level would also help in improving adoption and use of family planning measures.

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EMPHYSEMATOUS PYELONEPHRITIS

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A 60 years old female with history of diabetes since 10 years on irregular treatment presented with the complaints of abdominal pain, fever and dysuria. There was tenderness over both renal angles. Her laboratory profile revealed Hb 9.86%; TLC 16200/mm³; DLC P79, L21, E0, B0, M0; ESR 45 mm at the end of first hour, Random blood sugar 270 mg%; urine for ketone bodies negative. Urine examination revealed many pus cells with positive culture for E.coli. X-ray chest and Plain X-ray abdomen were non contributory. Ultrasound abdomen revealed enlargement of both kidneys with right kidney measuring 11.9 cm and left kidney 13.3 cm in size as well as presence of dirty echoes due to air in both kidneys involving pelvicalyceal systems. These findings were consistent with the diagnosis of bilateral emphysematous pyelonephritis (See photographs). As the patient had uncontrolled diabetes, so she was

considered high risk case of surgery. Hence she was started on Ceftriaxone I/V for 4 weeks along with insulin and supportive therapy. She responded dramatically to treatment and was discharged in satisfactory condition with the decrease in renal size on repeat ultrasound abdomen. But she was lost on subsequent follow up. Emphysematous pyelonephritis is a necrotising infection of the renal/ultrasound parenchyma with gas formation classically seen in diabetic patients. Most common etiologic agent is E.coli. X-ray abdomen shadow within the kidney shows air in 33% of cases only. Although CT abdomen is the investigation of choice, yet the patient refused for it. Treatment is nephrectomy under good antibiotic cover. Sometimes the condition may respond to prolonged antibiotic treatment alone. This condition should be suspected in any patient with pyelonephritis not responding to antibiotics within 48 hours.



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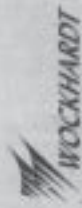
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Evaluation of Male Infertility

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Abstract: Infertility is one of commonest disorders to afflict young men and women, more so with increasing couples/partners deciding to delay starting family for various reasons. The evaluation of infertility is initiated typically after 1 yr of failure to conceive after unprotected intercourse. The couple should be evaluated together to determine whether the problem resides in the male partner, the female partner, or both. The objectives of evaluation are to exclude treatable conditions—gonadotropin deficiency, obstruction, and coital disorders—and identify those who will benefit with assisted reproductive technologies. All infertile men should undergo several semen analyses according to the World Health Organization manual, as well as measurements of testosterone, LH, and FSH levels. Hormone evaluation can help determine whether the patient has gonadotropin deficiency (low testosterone and low or inappropriately normal LH and FSH), primary testicular failure (low testosterone, elevated LH and FSH), spermatogenic failure (normal testosterone and LH, elevated FSH), or androgen resistance (high testosterone, elevated LH). A majority of infertile men have normal testosterone, LH, and FSH levels. Obstruction should be ruled out in azoospermic men with normal testosterone, LH, and FSH levels.

INTRODUCTION

Reproduction and fertility are central to survival for propagation for future generations. Infertility continues to be a highly prevalent condition; the proportion of couples seeking medical treatment for infertility is estimated at 4–17%. The primary problem resides exclusively in the male partner in approximately 20% of infertile couples; in an additional 30%, problems reside in both the male and the female partner.

The endocrinologist/fertility specialist should play an important role in coordinating the care of the infertile couple and providing counsel on prognosis and treatment options, including ART programs. The treating doctor should identify those who have a treatable cause of infertility, such as gonadotropin deficiency or obstruction. The evaluation should determine which couples can benefit from ART and whether the patient has untreatable sterility, in which case the couple should be counseled about adoption or artificial insemination with donor sperm. The couple should be made aware of the modalities of treatment and its outcome in an explicit way.

LABORATION EVALUATION

Determination of when diagnostic evaluation should be initiated is important because a majority of couples failing to conceive for 12 months will conceive spontaneously. The World Health Organization (WHO) defined infertility as the inability of a sexually active couple to achieve pregnancy despite unprotected intercourse for a period of greater than 12 months. The European Society for Human Reproduction and Embryology (ESHRE) defines infertility as failure of pregnancy to occur within 2 yr of regular coital exposure.

As the duration of nonconception increases, the likelihood of spontaneous conception decreases; among couples reporting infertility for 4 yr, conception rates per month are abysmally low. Thus, the pressures to initiate evaluation and treatment should be resisted if the period of nonconception is less than 1 yr. However, in couples with known reproductive disorders, an earlier intervention is justified.

Causes and pathophysiology

The frequency of etiological factors varies among different surveys. In general, 15–20% of infertile men are azoospermic, and 10% have sperm density below 1 million/ml. A specific cause of infertility is not determinable in 40–60% men. Most infertile men have idiopathic oligozoospermia.

Correctable or treatable causes of infertility, such as gonadotropin

deficiency, obstruction, and coital disorders, are present in only a small fraction, but it is important to recognize them because effective therapies are available. Varicoceles are present in 10–30% of infertile men but their role in pathophysiology of infertility remains unclear. A number of genetic disorders have been implicated in spermatogenic failure; of these, Klinefelter syndrome and Y chromosome microdeletions are the most prevalent. The mechanism by which antisperm antibodies cause infertility are unclear.

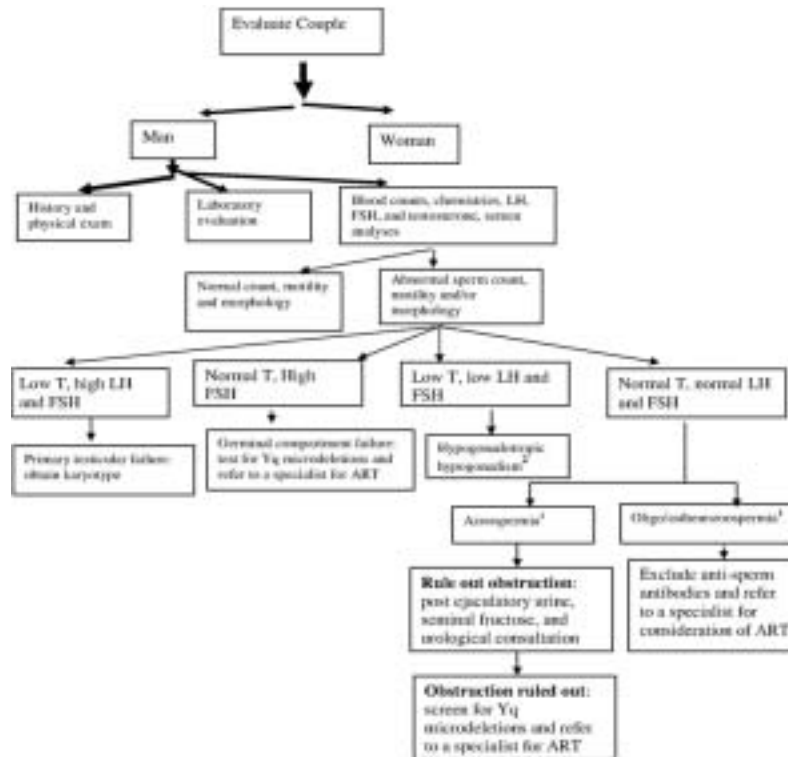
Diagnostic evaluation

The objectives of evaluation are to exclude treatable conditions—gonadotropin deficiency, obstruction, and coital disorders—and to identify those who are candidates for ART.

1. Evaluate the couple together and determine whether the problem resides in the male partner, the female partner, or both.
2. Initial work up should involve evaluation of general health and exclusion of systemic diseases.
3. History should focus on duration of infertility, previous fertility in the man or the woman, contraceptive use, sexual function, frequency and timing of intercourse, and sexual practices. Ascertain the timing of pubertal development, shaving frequency, and hair loss. Inquire about scrotal trauma, genitourinary infection, sexually transmitted disease, and scrotal or inguinal surgery including hernioplasty and vasectomy. Ask for history of cancer, especially previous treatment with cancer chemotherapy and radiation to the inguinal or scrotal area. Evaluate hair distribution and escutcheon, body proportions, and voice. Measure testicular and palpate epididymis for cysts and vas deferens for total or segmental absence.
4. Analyze three or more semen samples after at least 48-h abstinence; determine sperm density, motility, and morphology, using rigorous quality control in accordance with WHO manual.
5. Measure testosterone, LH, and FSH in early morning to determine whether patient has gonadotropin deficiency, primary testicular failure (low testosterone, elevated LH and FSH), selective spermatogenic failure (normal testosterone and LH, elevated FSH), or androgen resistance (high testosterone, elevated LH). *Keep in mind that majority of infertile men have normal testosterone, LH, and FSH levels.*
6. In men with azoospermia and normal testosterone, LH, and FSH

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EVALUATION OF MALE INFERTILITY- Flow chart



Infertile men with nonobstructive azoospermia and severe oligozoospermia with normal or elevated FSH should undergo a karyotype and screening for Yq microdeletions before being referred for ICSI.² Men deemed to have hypogonadotropic hypogonadism should be evaluated further by an magnetic resonance imaging scan, prolactin, and measurement of other pituitary hormones to exclude space occupying neoplastic or infiltrative lesions of the hypothalamic pituitary region. T, Testosterone

levels, exclude obstruction by measuring seminal fructose and obtaining urological evaluation; perform cystic fibrosis transmembrane conductance regulator (CFTR) mutation analysis in those with absence of vas.

7. Normal testosterone, normal LH, and elevated FSH levels in an azoospermic or severely oligozoospermic man are suggestive of primary spermatogenic failure. These men should undergo measurement of testicular volume, karyotyping and screening for Yq microdeletions.

TREATMENT

1. Testosterone, human chorionic gonadotropin (hCG), clomiphene citrate and other aromatase inhibitors, and bromocriptine have not been shown to be effective in men with idiopathic oligo/azoospermia; *INFACT* Testosterone therapy can further suppress spermatogenesis .
2. Men with hypogonadotropic hypogonadism in whom pituitary neoplastic lesions and hyperprolactinemia have been excluded are candidates for gonadotropin or pulsatile GnRH therapy.
3. Men with obstructive azoospermia should be referred to a urologist for surgical correction. With microsurgical techniques, restoration of patency can be achieved in 70–90% of patients, although restoration of fertility is achieved only in 50%. In men with failed vasectomy reversal, verification of patency restoration

and surgical revision, if indicated, or ICSI using epididymal sperm are reasonable options.

4. Men with idiopathic oligozoospermia should undergo genetic testing and be referred to a specialized fertility center for consideration of ART treatment. IVF should be attempted if there are more than 2 million motile sperm. If there are less than 2 million sperm in the ejaculate, less than 5% sperm with normal morphology, or less than 5% sperm with progressive motility, ICSI should be offered.
5. Men with nonobstructive azoospermia should be offered karyotype and screening for Yq microdeletions. In some men with nonobstructive azoospermia, no sperm or spermatids may be retrievable from testicular biopsy, whereas for some couples the expense of ICSI may be prohibitive; for these couples, artificial insemination by donor sperm and adoption are realistic options.

OTHER HEALTH CONSIDERATIONS IN TREATING INFERTILE MEN

Some causes of infertility (Klinefelter's syndrome, IHH) in men also are associated with androgen deficiency. Also, spermatogenic failure may be associated with impaired Leydig cell function. In men with gonadotropin deficiency, hCG and pulsatile GnRH therapy may restore both spermatogenesis and testosterone concentrations. However, exogenous testosterone administration suppresses

spermatogenesis; infertility is a common complication of androgen abuse by body builders.

Hormonal treatment of men with hypogonadotropic hypogonadism Gonadotropin therapy and pulsatile GnRH are highly effective in inducing spermatogenesis in men with IHH. The two therapies do not differ in the time to first appearance of sperm, sperm densities, or pregnancy rates but pulsatile GnRH therapy is not an option for patients with panhypopituitarism.

The therapy of IHH is started with hCG 1000 U three times weekly; the dose is adjusted to achieve nadir testosterone level measured 48 h after hCG injection in the mid-normal range. Recombinant human LH also has become available for clinical use. If after 6–9 months of hCG or recombinant human LH therapy no sperm is detected in the semen, recombinant or highly purified human FSH is added at a dose of 75 U three times weekly. The dose may be increased by 75 U three times weekly every 3 months depending upon the clinical response. Men with postpubertal onset of hypogonadotropic hypogonadism are more likely to respond to hCG alone with reinitiation of spermatogenesis than those with prepubertal onset who are likely to require addition of FSH.

Pulsatile GnRH administration is initiated at an initial dose of 25 ng/kg per pulse administered sc every 2 h by a portable infusion pump. Dose of GnRH is adjusted until serum testosterone level is in the midnormal range. Doses ranging from 25 to 200 ng/kg may be required to induce virilization. After successful induction of secondary sex characteristics, GnRH dose can be reduced.

The best predictors of response to gonadotropin therapy are testicular volume and time of onset of gonadotropin deficiency (pre- or postpubertal). Those with testicular volumes greater than 8 ml reflecting less severe gonadotropin deficiency and postpubertal onset of gonadotropin deficiency are more likely to respond than those with testicular volumes less than 4 ml and prepubertal onset. Prior androgen therapy does not affect outcome.

ICSI for male factor infertility

ICSI has emerged as the treatment of choice for idiopathic male factor infertility. The pregnancy rates per transfer are higher if fresh sperm is used instead of cryopreserved sperm, and higher if fresh embryos are used instead of frozen-thawed embryos. The pregnancy rates are similar for obstructive and nonobstructive azoospermia. The results of ICSI are affected by the age of the female partner and the quality of the oocyte. The success rates of ICSI are lower in men in whom sperm has been retrieved from the testis by biopsy and in men with necro- or globozoospermia. In men with obstructive azoospermia, there is insufficient evidence to recommend any specific sperm retrieval procedure before ICSI.

Complications of ICSI: Multiple gestation, with its associated risks of low birth weight and preterm delivery, is the most frequent complication of ICSI. The risk of obstetric and perinatal complications is higher for pregnancies resulting from ICSI than for naturally conceived pregnancies. Chromosomal abnormalities have been reported with higher frequency in offspring of ICSI than controls; there is also a small but significant increase in the frequency of chromosome aneuploidy, especially sex chromosome aneuploidy, among offspring of ICSI. The frequency of major congenital malformations is not significantly different between ICSI and IVF. When multiplicity is taken into account, the incidence of major or minor malformations is not increased. Even among singleton births

resulting from ARTs, the risk of low birth weight, preterm delivery, and adverse perinatal outcomes is increased. Although ICSI is an effective therapy for many couples with male factor infertility, it is expensive and its long-term safety is unclear.

TREATMENT OPTIONS FOR PATIENTS WITH AZOOSPERMIA

The prognosis for men with nonobstructive azoospermia and total teratozoospermia has improved with the advent of ICSI. There are several reports of successful pregnancies in partners of men with Klinefelter syndrome by ICSI using sperm retrieved from testicular biopsy. Adoption, artificial insemination using donor sperm, and acceptance of childlessness are realistic options.

NOTE

Several societies, including the American Urological Association, American Society for Reproductive Medicine, ESHRE, and European Association of Urologists, have published guidelines for the management of infertile men. Guidelines for standardized testing for Yq microdeletions, semen analyses, genetic counseling, and prenatal diagnosis have also been published. The readers are encouraged to go through those guidelines for complete and better understanding of management of male infertility.

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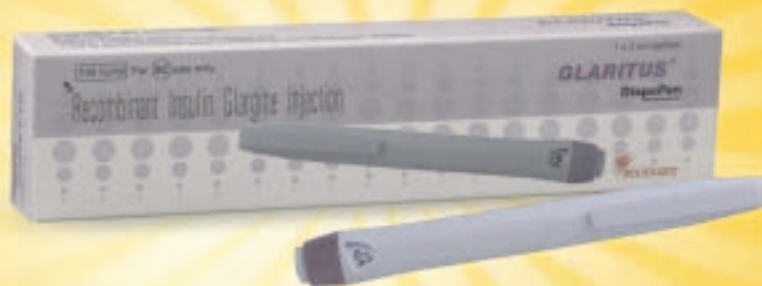
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GLARITUS Dispo Pen

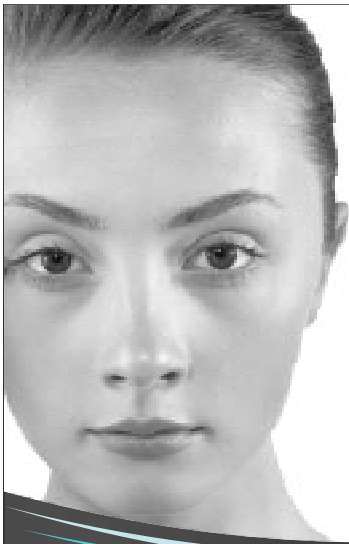
▶ Dispo Pen Rs.584/-*



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▶ Pen Royale Rs.450/-* Cartridge Rs.435/-*

* Per US\$ 1.00
1 Diabetes Care, 2009; 32: 791 - 793



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