

Future of Pediatric Radiology in India

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Abstract: Pediatric Radiology is a distinct subspecialty of Radiology. Children need to be treated differently as compared to adult patients especially with regard to radiation protection. This article discusses the current status of pediatric radiology in India and the facilities available for developing expertise in pediatric radiology. Future challenges are highlighted and possible solutions discussed.

Pediatric radiology is a subspecialty of radiology involving the imaging of fetuses, infants, children, adolescents and young adults¹. Although some diseases seen in pediatric population are similar to that in the adult population, there are many conditions which are peculiar to children. The pediatric radiologists have to take into account the dynamics of a growing body, from the pre-term infants to grown up children/adolescents, where the organs follow growth patterns and phases¹. Conducting the radiological examinations in pediatric population is a challenge as radiologist has to keep in mind several constraints peculiar to pediatric population. The important issues, especially with infants and neonates, include avoiding of prolonged fasting, hypothermia, avoiding bowel preparation and need for skilled anesthetists for safe sedation. The radiation dose needs to be kept at the lowest possible levels to minimize the risk of radiation induced malignancy in later life.

In many countries, especially Asian countries, there is no structured training in pediatric radiology. However, in some countries (e.g. UK, Switzerland), radiologists have to complete two years of fellowship training in pediatric radiology, after having completed a radiology residency, before they are eligible to take the board examination for official pediatric radiology subspecialty certification¹. This then qualifies them in the specialized area of pediatric radiology. In India, pediatric radiology is practiced predominantly as part of general radiology practice. There are no facilities for dedicated pediatric radiology training as yet in India². The radiologists acquire their skills during their radiology residency and sharpen their skills with growing experience. However, those who encounter pediatric patients infrequently face difficulties in conducting and evaluating radiological studies. Although Indian Radiology and Imaging Association has been in existence since 1931, the Indian Society of Pediatric Radiology (ISPR) was born in 2003. The aims and objectives of ISPR encompass multiple aspects for development of Pediatric Radiology in India. Currently, there are more than three hundred members of the ISPR. The ISPR conducts annual conferences and midterm continuing educations (CME) programs at regular intervals. Apart from ISPR, there are several other international societies like The Society for Pediatric Radiology (SPR) (U.S.A.), European Society of Pediatric Radiology (ESPR), Latin American Society of Pediatric Radiology (SLARP) and Asia and Oceanic Society for Pediatric Radiology (AOSPR) who are striving for promotion of pediatric radiology. Unlike the scenario in adult radiology, the concept of subspecialties in pediatric radiology is as yet alien. However, the Society for Pediatric Interventional Radiology (SPIR) has been launched recently. With the increasing trend towards subspecialty practice amongst pediatricians, the need for subspecialty development in pediatric radiology is likely to become more acute in future.

The current thrust of Pediatric Radiologists is to keep the radiation dose to the children as low as reasonably achievable (ALARA). This is because the growing tissues of children are at higher risk of developing malignancy. Moreover, the children have (compared to adults) a longer life span to manifest the adverse effects of radiation. Detailed guidelines are now available for reducing radiation dose during fluoroscopy, Computed tomography (CT) scan and interventional procedures in children³⁻⁵. An Alliance for Radiation Safety in Pediatric Imaging (imagegently campaign)⁶ (figure 1) has recently

taken shape with the objective of increasing awareness in the imaging community of the need to adjust radiation dose when imaging children. It started as a committee within the Society for Pediatric Radiology in late 2006 and currently encompasses 72 professional associations, including Indian Society of Pediatric Radiology, globally. The ultimate goal of this Alliance is to change practice⁶. The initial focus of the alliance has been CT scan as there has been dramatic global increase in number of CT scans being performed for children. The alliance website (www.imagegently.org) provides information for radiologists, pediatricians, medical physicists, radiology technologists and parents. The alliance has evoked global interest. Already, the website has been visited over 3,90,000 times, the CT protocol has been downloaded over 26,000 times and 18,000 medical professionals have taken the pledge. Recently, the alliance has started targeting radiation safety in pediatric interventional radiology. It has been labeled "Image Gently, Step Lightly". It encourages the radiologists to "Step Lightly" on the fluoroscopy pedal during the pediatric interventional procedures. It also encourages the radiologists to use ultrasound or MRI for guidance during interventional procedures. The image gently campaign has been named for Associations Advance America Honor Roll award for the year 2009. This award is sponsored by the American Society of Association Executives to recognize the ways nonprofit associations improve the quality of life in America.



Figure 1: Logo of the Alliance for Radiation Safety in Pediatric Imaging (imagegently campaign) (Reproduced with permission from the Alliance)

The growth of Pediatric Radiology in India has been unorganized. However, after the launching of Indian Society of Pediatric Radiology, regular educational meetings have started. The future efforts should include mandatory rotational posting in pediatric radiology (if necessary, in a different hospital) for post graduate students and development of fellowship programmes in pediatric radiology. In country training programmes, meeting of expert groups, seminars and conferences are other means to raise task force capable of serving the needs of pediatric patients. The need for having specialized career in pediatric radiology needs to be balanced against the reality of having financial viability. The existing model of Indian health care delivery system provides for hospitals which look after both adult and pediatric patients. Accordingly, the radiologists are required to have knowledge of both adult as well as pediatric radiology. Since there are very few hospitals across India which deal exclusively with pediatric patients, the demand for dedicated pediatric radiologists will continue to be lower than that for adult radiology. This fact has to be kept in mind while planning the future of pediatric radiology in India. To address the needs of an adult radiologist who also spends some time in pediatric radiology, apart from CME programmes, there is need to have interactive web groups and "go-to"

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