

# IRPA 10

## TOPICAL SESSIONS Reports of Co-Chairmen for Highlight Sessions

### ***T-22: Improvements in Diagnostic Techniques in Medicine with Lower Exposure of the Patient and Staff Thursday, 18 May 2000***

Chair and Keynote: C. Park

Co-Chair: S. Koga

Problem of an imaging procedure is to find the balance between of dose to the patient and staff, and the loss of diagnostic information. Those procedures are assumed to produce a net benefit, but the potential for radiation-induced injuries to patients exists. Developments of diagnostic imaging technologies, radiation safety philosophy and ALARA in diagnostic radiology were excellently reviewed by Dr.Park from Korea, keynote speaker. ALARA in diagnostic radiology, in protection level, is to perform diagnostic procedure that optimize both radiation exposure and diagnostic information, and in clinical levels, and to find a reasonable compromise between high image quality and low patient dose, considering justification of practice and optimization of procedure.

Dr.Li and his colleagues from China, showed the results of survey conducted in Shandong Province, China. Dose surveys were carried out in 98 hospitals. Remarkable feature was 39.8% of x-ray examinations resulted from chest fluoroscopy with average entrance surface dose to the patient of 1.5mGy. But in routine x-ray examinations, doses were well below the guidance level shown by IAEA. There were wide variations even for the same type of examinations.

Dr.Corbett, UK, summarized the influence of radiologist's technique on patient dose in barium studies. He pointed out that considerable amount of works to reduce the dose during fluoroscopic procedures, and many comments that dose could vary considerably depended on the clinical technique, but those comments were not noticed by the radiological communities at large. He emphasized how to get radiologists to change their technique. They were re-education and training program, use and provision of dose-area product meters.

Dr.Pulmer and her colleague experimentally estimated fetal radiation dose, especially from placental transference of radiopharmaceuticals administered during pregnancy using pregnant guinea pigs in late stage of gestation. Their conclusion was fetal dose was high in early pregnancy but still well below 1 mSv from commonly used doses of radiopharmaceuticals.

Dr.Milu and his colleague from Romania surveyed in 5 main hospitals in Romania, during several x-ray examinations. The surveys consisted in patient and in phantom dose measurements and comparisons with guidance levels of IAEA. The measured doses were well within the guidance level, excepting chest radiography,

where the mean dose is twice the guidance level for lateral projection and 5 times for PA projection.

Dr. Park concluded that ALARA in diagnostic radiology depended on the quality assurance of x-ray equipment and the optimization of diagnostic procedures. Personnel should concentrate on reducing personal dose with the understanding of the radiation hazards. As technology develops, work habits shift, similarly regulation changes with time. And finally, he emphasized that continuing education in radiation protection is an important aspect of maintaining personal and institutional ALARA policies.