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Recent Survey of Radiation Dose from Diagnostic Radiology and Nuclear Medicine in Korea

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Knowledge of recent trends in the radiation doses from diagnostic radiology procedures and their distribution for Korean is much of worth because medical radiation constitutes the largest artificial source of exposure and the medical exposure is in a trend of fast increasing in Korea. In this study, annual collective doses and per-caput effective doses from different radiology procedures were estimated by combining the effective dose estimates per single medical procedure and recent survey of the frequency of the diagnostic radiology procedures in 2004. A total of about 102.3 million examinations (diagnostic radiology: 101.8 million, nuclear medicine: 0.5 million) were conducted in that year in Korea (2.13 examinations per head of population). This figure is larger than that of last survey in 2002 (95 million examinations) due to the increase and some mistakes in last survey. Also, interventional radiology and PET data were added. The annual collective dose reaches 35190man-Sv (diagnostic radiology: 31660man-Sv, nuclear medicine: 3530man-Sv) which is reduced to the annual per-caput effective dose of 0.73mSv by dividing with the national population of 48.1millions. The annual collective dose from diagnostic radiology occupies about 90% of total dose and it is similar to last survey results. But the collective dose from nuclear medicine is considerable amount comparing to its frequency and that of occupational exposures, in the country operated 16 nuclear power plants in 2002, which is no more than 70man-Sv in the same year. These results are able to provide useful guidance on where best to concentrate efforts on patient dose reduction for optimization of protection in medicine.

Keywords : Medical Exposure, Per-Caput Effective Dose, Collective Dose