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# Monitoring the Lens of the Eye and Extremity of Radiation Workers in Bangladesh

The use of ionizing radiation in the nuclear medicine and cardiology departments are increasing in Bangladesh. Nuclear medicine workers are getting higher radiation dose comparing to other workers in medical procedures because nuclear medicine workers used to handle unsealed radioactive sources. Extremities for example fingers of the hands of radiation workers in nuclear medicine is usually exposed to higher radiation comparing to other parts of the body because it is unshielded and close to the source. In 2011 ICRP recommendation, dose limit for lens of the eye of radiation workers has been significantly reduced from 150 mSv/yr to 20 mSv/yr, averaged on five consecutive years, with provision that any single year maximum dose 50 mSv. Cardiologists are also getting high dose in lens of the eye because they need to stand close to the patient and patient is the main source of the scattered radiation. 45 radiation workers working in five large nuclear medicine departments of Bangladesh were monitored using ring TL dosimeters for consecutive two years. Each worker was worn two ring TL dosimeters at left- and right-hand fingers and the monitoring period was varied from 01-03 months. Lens of the eye equivalent doses of 14 radiation workers working in 3 interventional cardiology departments in large hospitals of Dhaka city were monitored using headbands for one year. The calculated left and right hands doses were varied from 1.609-105.071 mSv/yr and 1.587-81.176 mSv/yr respectively. It is observed that radiation worker working in isotope dispensing rooms, gamma camera rooms and thyroid laboratories are exposed more radiation than those working in other laboratories. The equivalent dose for lens of the eye of Cath Lab workers were ranged from 0.938-85.714 mSv/yr. Cardiologists were received higher equivalent dose comparing to the radiographers and nurses. Nuclear Medicine and Cardiology departments Staff should be more conscious on radiation protection as per national regulations and international recommendations for minimizing radiation exposure. Periodic training on radiation protection & safety to be arranged in order to implement the ALARA principle.

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