Assessment of Eye Lens Dose in Interventional Cardiology

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The International Commission on Radiological Protection decreased the annual eye lens dose limit to 20 mSv in 2011 from the recommended value of 150 mSv in 2007 to reduce radiation-induced lens opacity in radiation workers in interventional departments. Consequently, the newly recommended occupational eye lens dose limit creates an interest to investigate the eye lens doses for interventional cardiologists as they are more susceptible to radiation hazards, especially for eye lenses. Therefore, the main aim of this study is to investigate the occupational eye lens doses and determine the correlation between direct eye dosimetric values and dose values obtained from supplementary dosimeters for interventional cardiologists in Sri Lanka. 150 cardiac catheterization procedures were considered in 1 month period. Two cardiologists were selected from the cardiac catheterization laboratory to measure the eye lens doses. An ED3 eye dosimeter was placed near to left eye for the direct reading of the eye lens dose. Hp(10) and Hp(0.07) dosimeters were placed on the collar level outside the apron to assess the thyroid collar dose. The annual effective doses to operators A and B were received as 8.6958 mSv/year and 4.8361 mSv/year respectively. For each operator, the Pearson correlation received good relationships between eye lens, Hp(10), and Hp(0.07) doses. This study provided appropriate evidence to indicate the necessity of routine eye lens dose measurement. The current study revealed the importance of supplementary dosimeters to estimate the eye lens doses when dosemeters dedicated to eye lens dose measurement are not available.

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