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عنوان مقاله:

Evaluation of Maximum Patient Skin Dose Arising from Interventional Cardiology Using Thermoluminescence Dosimeter in Mashhad, Iran

محل انتشار:

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خلاصه مقاله:

Introduction The increasing practice of interventional fluoroscopy in diagnosis and treatment of cardiovascular disease has risen attention to improve radiation protection of patients and cardiologists in these relatively high dose techniques. Therefore, nowadays there is an emphasis on the measurement of radiation dose received by patients and cardiologists arising from the relevant procedures. Materials and Methods Maximum skin dose of 90 patients in two hospitals in Mashhad have been measured by a grid of 30 thermoluminescent dosimeters (TLDs). The X-ray units were Axiom Artis Siemens in both hospitals which were equipped with integrated dose area product (DAP) meters. The procedures were divided into two groups: diagnostic procedures (angiography and angiography with measurement of left or right ventricle and pulmonary artery) and therapeutic procedures (angioplasty with or without dilatation or stent and angiography with angioplasty). DAP value, fluoro time, and cumulative dose at Interventional Reference Point (CDIRP) were also registered for each procedure. Results The mean values of maximum skin dose (MSD) and DAP for diagnostic procedures were 68.51 mGy and 20.96 Gy.cm2, respectively and for therapeutic procedures 344.18 mGy and 70.94 Gy.cm2, respectively. A good correlation was found between MSD and DAP (R=0.88) but correlation between MSD and CDIRP was stronger (R=0.90). Conclusion MSD values did not exceed the 2000 mGy dose threshold for deterministic effects. The highest MSD obtained for diagnostic procedures was 229.40 mGy and for therapeutic procedures it was 820.50 mGy. The results show that CDIRP can be a fairly good estimate of MSD.

کلمات کلیدی:

Interventional Cardiology, Maximum Skin Dose, TLD

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