RADIATION DOSE AUDIT IN INTERVENTIONAL CARDIOLOGY: A TOOL FOR EVALUATION OF WORK PRACTICES

High radiation doses occur in interventional cardiology procedures owing at least to the following reasons: the procedures may be complicated and require very long fluoroscopic guidance, the procedures may require high-quality, low-noise images, some cardiologists may not have sufficient training in radiation protection or the X-ray equipment used may not be optimal for the procedure. The most complicated interventional cardiology procedures, particularly percutaneous coronary angioplasty (PTCA), stent implantations and radiofrequency ablation, have been reported to produce more concern to deterministic effects of radiation than stochastic long term risks.\(^1\)

Consequently, the International Radiation Regulations have been formulated to control medical exposures.\(^2,3\) They emphasize the set up of regular local audits to raise radiation awareness and to improve dose reduction taking into account local equipment and operators.

Establishment of diagnostic reference levels (DRLs) and personnel training to optimize radiation protection are important parts for implementing ALARA (As Low As Reasonably Achievable) principle in medical practice. For instance, the European DIMOND consortium proposed DRLs for coronary angiography (CA) and PTCA (Dose-area product 45, respectively 75 Gy cm\(^2\), fluoroscopy time 7.5, respectively 17 minutes and total number of frames 1250 and 1300). These proposed values should be considered as a first approach in the optimization of the X-ray system or the procedure.\(^4\)

The patient and staff dose data knowledge, the possibility to improve image quality and diagnostic information and real possibility to balance clinical benefit versus radiological risk are few advantages of a dose audit in cardiac catheterization laboratories. Dose surveys have to be performed by medical physics experts. Communication and discussion of the results with medical staff is essential. In this journal issue, an interesting study of radiation dose in coronary angiography is presented.\(^5\) It brings valuable information in the area of interventional cardiology and highlights the need of patient dose monitoring.

REFERENCES


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