

LEVEL OF PATIENT AND OPERATOR DOSE IN THE LARGEST CARDIAC CENTER IN GREECE

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There is a growing concern regarding doses from interventional procedures due to X-ray radiation. Deterministic effects require a skin dose of approximately 2 Gy and doses of this magnitude are not considered uncommon for some complicated interventional procedures. The objective of the study was to investigate patient and staff doses in the most frequently IC procedures performed in the largest Cardiac Center in Greece.

Data on 549 patients were collected according to a commonly agreed protocol among SENTINEL partners on 3 digital X-ray systems (2 with image intensifier (II) and one with a flat panel detector (F)). Clinical and technical data on 212 Coronary Angiographies (CA), 203 Percutaneous Transluminal Coronary Angioplasties (PTCA) and 134 various electrophysiological studies were included in the study. Patient dose was measured in terms of Dose Area Product. Patient skin dose was measured in PTCA and RF ablation using suitably calibrated slow radiotherapy films (KODAK EDR-II). The cardiologist dose was measured in PTCA using suitably calibrated thermoluminescent dosimeters (TLD) that were placed in three body regions of the operator: left arm, left hand and left foot.

Patient median DAP doses ranged between 6.7 Gy cm^2 to 83.5 Gy cm^2 , the lowest of which was found in pacemaker implantation and the highest in RF ablation. Patient median skin dose in PTCA was 799 mGy (320-1660 mGy) and in RF ablation 160 mGy (35-1920 mGy). The skin doses presented have increased levels and some of the data are close to the limit of 2 Gy for deterministic effects. Median arm, hand and foot dose to the cardiologist were 12.6 μSv , 27 μSv and 13 μSv respectively.

The great range of radiation doses received by both patients and operators confirms the need to continuously monitor IC techniques and to find a methodology to standardise these procedures.

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