Physician Worn Digital X-Ray Dosimeters Reduce X-Ray Use During Pacing Procedures

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Sunday, April 03, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Public Health Topics in Cardiac Pacing
Abstract Category: 28. Cardiac Pacing
Session-Poster Board Number: 1058-389

Authors: Douglas Elder, Karen Barr, Stephan Koch, Justein Sim, John Irving, Ben Szwejkowski, Adnan Nadir, Anna-maria Choy, NHS Tayside, Dundee, United Kingdom

Background All pacemaker implantation procedures require the use of fluoroscopic images. The cumulative dose of X-Ray expose is a concern to physicians and patients alike. Physicians usually utilise film badges under lead aprons to document torso dose. These badges, however, report a cumulative dose over a set period (e.g. 1 month)

Methods We utilised a digital dosimeter, worn on top of the lead apron, to provide live feedback on exposure to the physician during implant. The physician wore the monitor for every pacing case and the dose was fed back to the physician. We examined the fluoroscopy usage for 6 months prior to and 6 months after implementation and recorded screening time and dose area product (DAP) for each procedure.

Results We performed 208 procedures during the study period. Using the dosimeters X-Ray screening time fell from 3.7 to 3.0 mins (p<0.001) and DAP fell from 247 to 185 microGray/cm2 (p=<0.001). There was no significant differences in the mix between complex and simple device implants between the two time periods (p=NS).Similarly there was no increase in complication rate (e.g. lead misplacement) as a result of the decreased screening times p=NS

Conclusions The use of live information from a digital X-Ray dosimeter results in a significant decrease in X-Ray screening times by the physician and serves to reduce the risk of both stochastic and deterministic effects of ionising radiation to physicians, co-workers and patients alike.