

**INFLUENCE OF DIFFERENT FLAT-PANEL DETECTOR SIZES ON RADIATION DOSE OF CLINICAL INTERVENTIONAL ANGIOGRAPHY PROCEDURES**

Poster Contributions
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Background: Radiation-induced cataracts in interventionalists and lens doses approaching the limit of 150 mSv per year during angiographic procedures have been reported. This study sought to determine radiation exposure across the large flat-panel detectors (FPD) currently applied to X-ray equipment in catheterization for more examination items, during fluoroscopically guided, invasive cardiovascular (CV) procedures.

Methods: The exposure dose during the angiography with small field size was then compared with that under large field size. Optically stimulated luminescence dosimeters (OSLD) were fixed in an anthropomorphic phantom measure entrance surface doses with digital cine angiography at duration time 10 seconds.

Results: The average entrance surface dose rate during the angiography with large FPD (7.61 ± 0.57 mGy) was lower ($P < 0.0001$) than that with small FPD (17.93 ± 1.10 mGy). However, the difference in dose-area product (DAP) was insignificant ($P = 0.73$) between two FPD sizes. For OSLD data, the average entrance surface doses from machine was slightly higher with large field size detector was $14.36 \pm 1.68 \mu\text{Gy}$ than with small field size detector were $8.06 \pm 1.26 \mu\text{Gy}$ ($P = 0.0032$).

Conclusions: The entrance surface doses of digital cine angiography in FPD systems was significantly from different size systems. Accordingly, large FPD was suggested to be used for peripheral vascular examination and small FPD for routine cardiac angiography to decrease the radiation dose in patients. A large panel used to perform coronary heart-related examinations smaller collimator was to reduce exposure to non-target organs.