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Effectiveness of a new radiation protection system in the interventional radiology setting

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Abstract

Objectives: The goal of this study was to examine a new weightless-like radiation protection garment regarding its radiation protection efficacy and to compare it to a conventional two-piece apron suit plus thyroid collar and standard ancillary shields.

Material and Methods: All measurements were carried out using a clinical angiography system with a standardized fluoroscopy protocol for different C-arm angulations. An anthropomorphic torso phantom served as a scattering body. In addition, an ionization chamber was used to measure the radiation exposure on five different representative heights and at two different positions of an examiner during a typical fluoroscopic-guided intervention.

Results: The new weightless-like radiation protection garment and the conventional protection concept showed a mean dose reduction of 98.1% ($p < 0.01$) and 90.1% ($p < 0.01$) when compared to no shielding, respectively. By adding ancillary shields to both systems, an average reduction

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