

عنوان مقاله:

Can Common Lead Apron in Testes Region Cause Radiation Dose Reduction during Chest CT Scan? A Patient Study

محل انتشار:

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خلاصه مقاله:

Background: Computed tomography (CT) is a routine procedure for diagnosing using ionization radiation which has hazardous effects especially on sensitive organs. Objective: The aim of this study was to quantify the dose reduction effect of lead apron shielding on the testicular region during routine chest CT scans. Material and Methods: In this measurement study, the routine chest CT examinations were performed for 30 male patients with common lead aprons folded and positioned in testis regions. The patient's mean body mass index (BMI) was 26.2 ± 4.6 kg/m². To calculate the doses at testis region, three thermoluminescent dosimeters (TLD-100) were attached at the top surface of the apron as an indicator of the doses without shielding, and three TLDs under the apron for doses with shielding. The TLD readouts were compared using SPSS software (Wilcoxon test) version 16. Results: The radiation dose in the testicular regions was reduced from 0.46 ± 0.04 to 0.20 ± 0.04 mGy in the presence of lead apron shielding ($p < 0.001$), the reduction was equal to 56%. Furthermore, the heritable risk probability was obtained at 2.0×10^{-5} % and 4.6×10^{-5} % for the patients using the lead apron shield versus without shield, respectively. Conclusion: Applying common lead aprons as shielding in the testis regions of male patients undergoing chest CT scans can reduce the radiation doses significantly. Therefore, this shield can be recommended for routine chest CT examinations.

کلمات کلیدی:

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