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ABSTRACT

Evaluation of Radiation Doses for Patients Undergoing Lumbar Spine Computed Tomography Examination in Palestine

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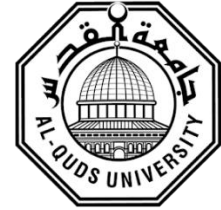
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Background: Technological advances in CT modality have dramatically increased the number of CT studies, with a significant increase in the radiation dose linked to CT imaging. This study aimed to assess the radiation effective dose and cancer risks for patients undergoing lumbar spine CT examination.

Objectives:

- 1- To assess radiation effective dose for patients undergoing lumbar spine CT examinations.
- 2 -To assess cancer risks in routine clinical practice of Lumbar spine CT examinations

Methods: A retrospective study was conducted at Palestine Medical Complex hospital, radiology departments are equipped with 64-slice CT machines (Philips Brilliance). A total of 98 patients (56 female, 42 male) underwent lumbar spine CT examinations.



Results: The effective dose for female patients ranged from 7.53 to 14.93 (mSv) with an average of 11.65 (mSv). While the effective dose for male patients ranged from 8.3 to 24.66 (mSv) with an average of 12.29 (mSv). The highest effective dose was 24.66 mSv. It was found for a 65 year male patient with a DLP and CTDIvol of 1644.3 mGy*cm, 26.25 mGy respectively. Cancer risk ranged from 0.02% to 0.23% with an average of 0.08 %. Cancer risk for the young female patients was higher than for young male patients. However, after the age of 65 cancer risk of male patients tend to be higher than female patients which needs more investigation.

Conclusion: The results on medical exposure from lumbar spine CT scans provided by this study are comparable with that reported from other countries. It is essential to enhance the radiologic technologist's knowledge of estimated radiation doses dosimetry with dose reduction strategies and optimization imaging to achieve the best patient protection. CT examinations must be done when it's referred by the physician to answer important clinical questions and aid in treatments.

Research Keywords: Radiation, Dose, Lumbar Spine, Computed, Tomography, Palestine.