

الآية

قال تعالى :

“ إِنَّا عَرَضْنَا الْأَمَانَةَ عَلَى السَّمَاوَاتِ وَالْأَرْضِ وَالْجِبَالِ فَأَبَيْنَ أَنْ يَحْمِلْنَهَا وَأَشْفَقْنَ مِنْهَا وَحَمَلَهَا الْإِنْسَانُ إِنَّهُ كَانَ ظَلُومًا جَهُولًا ”

صدق الله العظيم

سورة الأحزاب 72

DEDICATION

I dedicate this thesis to my beloved and blessed...My family, and everyone who lightened a dark spot in my mind.

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Abstract

The aim of this study was to estimate entrance skin dose for patients undergoing some diagnostic x-ray examinations by digital radiography, the data were collected from in Modern Medical Centre in Khartoum.

The findings of this study was that the mean ESD for the chest PA, Upper limb AP, Upper limb LAT, Cervical spine AP, Cervical spine LAT, lumbar spine AP, lumbar spine LAT, pelvis, lower limb AP and for lower limb LAT. were; 0.25 ± 0.07 mGy, 0.28 ± 0.25 mGy, 0.2 ± 0.17 mGy, 0.18 ± 0.07 mGy, 0.18 ± 0.07 mGy, 1.8 ± 0.3 mGy, 2.89 ± 0.7 mGy, 1.26 ± 0.4 mGy, 0.2 ± 0.07 mGy and 0.38 ± 0.15 mGy respectively.

ملخص الدراسة

ان الهدف من الدراسة هو تقدير الجرعة الاشعاعية لجلد المرضى اثناء اجراء بعض الفحوصات باستخدام جهاز التصوير الرقمي ، تم جمع هذه البيانات من المركز الطبي الحديث بالخرطوم.

وجد ان متوسط الجرعة الاشعاعية للجد عند اجراء فحص الصدر، الاطراف العليا (امامي خلفي)، الاطراف العليا (جانبي)، الفقرات العنقية (امامي خلفي)، الفقرات العنقية(جانبي)، الفقرات القطنية (امامي خلفي)، الفقرات القطنية (جانبي)، الحوض، الاطراف السفلى (امامي خلفي)، الاطراف السفلى (جانبي) هي:

0.07 ± 0.25 ميلي جراي، 0.25 ± 0.28 ميلي جراي، 0.17 ± 0.2 ميلي جراي،
 0.07 ± 0.18 ميلي جراي، 0.18 ± 0.07 ميلي جراي، 0.3 ± 1.8 ميلي جراي،
 0.7 ± 2.89 ميلي جراي، 0.4 ± 1.26 ميلي جراي، 0.07 ± 0.2 ميلي جراي،
 0.15 ± 0.38 ميلي جراي علي التوالي.

Abbreviations

ALARA: as low as reasonably achievable.

BMI: body mass index.

CCD: charged coupled devices.

CR: computed radiography.

CT: computed tomography.

DQE: detective quantum efficiency.

DR: digital radiography.

ESD: entrance skin dose.

FFD: focus to film distance.

ICRP: international commission on radiological protection.

kVp: kilovolage peak.

mAs: milliamperere seconds.

MTF: modulation transfer function.

PSP: photostimulable phosphors.

SNR: signal to noise ratio.

TFT: thin-film transistor.

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