قال تعالي :

﴿ اللَّهُ نُورُ السَّمَاوَاتِ وَالْأَرْضِ مَثَلُ نُورِهِ كَمِشْكَاةٍ فِيهَا مِصْبَاحٌ الْمِصْبَاحُ فِي زُجَاجَةٍ الزُّجَاجَةُ كَأَنَّهَا كَوْكَبٌ دُرِّيٌّ يُوقَدُ مِنْ شَجَرَةٍ مُبَارَكَةٍ زَيْتُونَةٍ لَا شَرْقِيَّةٍ وَلَا غَرْبِيَّةٍ يَكَادُ زَيْتُهَا يُضِيءُ وَلَوْ لَمْ تَمْسَسْهُ نَارٌ نُورٌ عَلَى نُورٍ يَهْدِي اللَّهُ لِنُورِهِ مَنْ يَشَاءُ وَيَضْرِبُ اللَّهُ الْأَمْثَالَ لِلنَّاسِ وَاللَّهُ بِكُلِّ شَيْءٍ عَلِيمٌ ﴾

سورة النور الاية ﴿٣٥﴾

﴿وَيَسْئَلُونَكَ عَنِ الرُّوحِ قُلِ الرُّوحُ مِنْ أَمْرِ رَبِّي وَما أُوتِيتُمْ مِنَ الْعِلْمِ إِلاَّ قَلِيلًا ﴾

سورة الإسراء الاية ﴿٨٥﴾

Dedication

Every challenging work needs self-efforts as well as guidance of elders especially those who were very close to our heart.

To those of the fingers to give us a life of happiness.

My humble effort I dedicate to my sweet and lovely mother.

To reap the thorns out of my way for me to pave the way science

To heart the great my father

Whose affection, love, encouragement, and prays of day and night make me able to get such success and honor,

Along with all hard working and respected teachers

To my brothers, sisters, friends, and to all my family.

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Abstract:

This study aims to evaluate of patient radiation dose in chest x-ray using Entrance surface dose calculations, the study was done in two hospitals Alshab Teaching Hospital (ATH) and Omdurman Teaching Hospital (OTH) in Khartoum state, Entrance surface dose (ESD) was determined from exposure settings and patient information using mathematical equation . 100 patients were examined in this study, The entrance surface doses (ESDs) to patient undergoing chest X-ray radiography Exposure settings and patients data were recorded. Result concerning the kilovoltage (KVp) and tube current (mAs) and focus to film distance (FFD) settings. The variation in the patient doses and techniques used for the examinations studied were found among the different hospitals denoting the importance of establishing a national quality assurance programme and examination protocols to ensure patient doses are kept as Low as possible. Mean ESDs obtained for chest radiography in (ATH) recorded in this study was (.16 $\pm$0.04) mGy and Mean ESDs obtained for chest radiography in (OTH) recorded in this study was (.1 $\pm$0.01) mGy.

الملخص:

تهدف هذه الدراسة إلى تقييم الجرعة الإشعاعية للمرضى في كشف الأشعة السينية للصدر بإستخدام حسابات مونت كارلو ، وقد أجريت هذه الدراسة في مستشفى الشعب التعليمي ومستشفى امدرمان التعليمي في ولاية الخرطوم . تم تحديد الجرعة عند السطح من إعدادات التعرض ومعلومات المريض بإستخدام معادلة رياضية ز

تم فحص ١٠٠ مريض في هذه الدراسة وتم تسجيل إعدادات التعرض ومعلومات المريض والجرعة عند السطح للمرضى تحت فحص الأشعة السينية للصدر ، النتائج تتضمن معلومات المريض الطول والوزن والجنس والعمر وإعدادات التعرض جهد الأنبوب وتيار الأنبوب والزمن .

تم ملاحظة الإختلاف في الجرعات للمرضى التقنيات المستخدمة للفحوصات المدروسة التي وجدت بين مختلف المستشفيات تشير إلى أهمية تأسيس برنامج تأكيد جودة قومي وبروتوكولات الفحص الإشعاعي للتأكيد أن جرعة المريض محفوظة أقل ما يمكن . وجدت الجرعة عند السطح المتحصلة عليها من هذه الدراسة في مستشفى الشعب التعليمي

(.16 $\pm$0.04) وفي مستشفى أمدرمان التعليمي (.1 $\pm$0.01) ملي قري

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List of abbreviation

CR	Computed Radiography
DR	Digital Radiography
ATH	Alshab Teaching Hospital
OTH	Omdurman Teaching Hospital
ICRU	International commission radiological unit
FS	Film Screen
AP	Anterior posterior
PA	Poster anterior
LAT	Lateral
HVL	Half Value Layer
PSP	Photo stimulated phosphor
TLD	Thermolumensecence Detector
PMT	Photomultiplier tube
ESAK	Entrance Surface Air Kirma
ESD	Entrance Surface Dose
FSD	Film Skin Dose
ALARA	As Low As Reasonable Achievable
ICRP	International Commission on Radiological Protection
NRPB	National Radiation Protection Board