

الآية  
قال تعالى :  
(وفى انفسكم افلا تبصرون)

سورة الذاريات : الآية 21

# **Dedication**

**To my parent**

**To my brothers**

**To my teachers**

**To my friends**

## **Acknowledgement**

My full thanks to GOD in every thing. My great and deep gratitude to my supervisor Dr .HUSSAIN AHMED HASSAN

I offer my regards and blessings to all of those in modern medical center radiologists , technologist, and staff .

To whom helped me I gave them my great thanks .

## Abbreviations

<b>CT</b>	<b>Computed tomography</b>
<b>Kerma</b>	kinetic energy relies by unit mass
<b>P</b>	The pitch
<b>L</b>	The scan length
<b>1</b>	The table increment
<b>Kv</b>	Kilovoltage
<b>mAs</b>	milli ampere second
<b>mGy</b>	mili Gray
<b>C TDI</b>	Computed tomography dose index
<b>C TDI<sub>w</sub></b>	weighted Computed tomography dose index
<b>CTDI<sub>v</sub></b>	volume Computed tomography dose index
<b>nCTDI<sub>w</sub></b>	normalized weighted computed tomography dose
<b>DLP</b>	Dose Length Product
<b>E</b>	The effective dose
<b>RP</b>	Radiation Protection
<b>SI</b>	Standard International
<b>NRPB</b>	National Radiation Protection Board
<b>IEC</b>	International electrotechnical commission
<b>UK.</b>	United Kingdom
<b>DRL</b>	Diagnostic Reference Level
<b>ACR</b>	American College of Radiologists
<b>EC</b>	European Commission
<b>ICRP</b>	International CommissioRadiologicalProtection
<b>R</b>	Roentgen
<b>X</b>	Exposure
<b>S I P</b>	standard temperature and pressure

## **Abstract**

**The use of CT in medical diagnosis delivers radiation dose to patients that are higher than those from other radiological procedures . Lack of optimized protocols could be an additional Source of Increased dose .**

**The goal of study was estimating radiation dose from CT Scan for the patients at modern medical center in Khartoum .**

**Details of this study have been taken from 35tests of patients by CT scan .and radiation dose have been calculated from volume CT dose index , Dose length product .**

**The most important results that the Dlp average is  $311.7 \pm 306.34$  mGy cm ,CTDI is  $7.60 \pm 2.54$  mGy. And E=37.41**

## الملخص

استعمال الاشعه المقطعيه فى مجال التشخيص الطبى يعطى جرعه اشعاعيه عاليه للمرضى اكثر من اى جهاز تشخيص طبى اخر .قله استعمال بروتوكولات مثاليه مناسيه ادت الى زياده الجرعه .

هدف الدراسه هو تقدير الجرعه الاشعاعيه من اختبارات التصوير بالاشعه المقطعيه للمرضى فى المركز الطبى الحديث بالخرطوم .

تفاصيل هذه الدراسه اخذت من 35 اختبار للمرضى بواسطه الاشعه المقطعيه .تم حساب الجرعات الاشعاعيه للمرضى من مؤشر جرعه الاشعه المقطعيه , volume CT dose Index , والجرعه الاشعاعيه الكامله , Dose length product , والجرعه الفعاله Effective dose. وحسبت لكل اختبار استعمال عوامل متعلقه بالتعرض الاشعاعى .

ومن اهم النتائج ان متوسط  $CTDI=7.6048 \text{ mGy}$  ،  $DLP = 311.77 \text{ mGy-cm}$  ،  $E=37.41 \text{ sv}$

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