الآية الكريمة

قال تعالى:

(قل اعملوا فسيرى الله عملكم ورسوله والمؤمنون)

صدق الله العظيم

Dedication

I would like to dedicate the benefits of this research to my mother, to my father God bless them, to my family for their support, encouragement & assistance and to all those who supported me with love, and to my teachers who always supported me

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The thanks for Allah Who helped me to present this humble study. I would like to express the deepest appreciation to my supervisor, Professor Mohammed Ahmed Ali Omer, who has the attitude and the substance of a genius: he continually and convincingly conveyed as spirit of adventure in regard to research, and an excitement in regard to teaching. Without his guidance and persistent help this dissertation would not have been possible. Also great thanks to Prof. Mohammed Elfadil for his continues helping .Also I would like to thanks the members of Elnilain medical diagnostic center department of nuclear medicine And physics .department at RICK for their generous helps

List of Abbreviation

Nuclear medicine	**NM**
Seivert	**Sv**
High level waste	**HLW**
Low level waste	**LLW**
Decay in storage	**DIS**
International commission radiation protection	**ICRP**
National Council on Radiation Protection and Measurements	**NCRP**
International commission on radiation units and measurement	**ICRU**
Half life	**HL**
Tenth value thickness	**TVT**
As law as reasonable achievable	**ALARA**
The International Atomic Energy Agency	**IAEA**
Radiation safety officer	**RSO**
Half value layer	**HVL**
The united nations scientific Committee on	**UNSCEAR**

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Abstract

Many studies have shown that the vulnerability of nuclear medicine technologists to radiation is evident from the radioactive waste. We in this study have drawn upon the existing activities in the nuclear medicine department at the centre of Elnilain for medical diagnosis, where continued study for more than 8 days, and the purpose of this study was to estimate the level of the dose to technologist , nurses and other persons who were present in the hot lab from the Department of Nuclear Medicine during the elution process of the generator of TC-99m, and then compare the results of the dose that subjected them to the standards of the International Radiation Protection (ICRP). In this study, using of survey meter type (Victoreen 451) to measure doses of radiation, and of which we found that the cumulative dose of the hands of technologist approximately 9.4 mSv per year and this dose is less than the limits of dose permitted 500 mSv per year, also found that the dose to technologist 3.6 mSv per year and this is also less than the dose limit with 20 mSv per year, and the dose to the nurse was 1 mSv per year, less than allowed by 20 mSv, the patient also we found that it is exposed to dose of 0.8 mSv and this value concern near to the

allowed 1 mSv the non-working people(public). And the co- patient exposed to a dose of 0.3 mSv, and this value is less than the allowable limit 1 mSv for .public

الخلاصة

كثير مِنْ الدِراساتِ بَيّنتْ بأنَ تعرّضَ تـ قنيي الطب النووي للإشعاع يَظْهرُ جليا مِنْ الفضلات المُشعّةِ. ونحن في هذه الدراسةِ استندنا إلى النشاطِات الموجودة في قسمِ الطب النووي في مركزِ النيلين لتشخيص الطبي حيث استمرت الدراسة لأكثر من 8 يوم، وكان الغرض من هذه الدراسةِ تـ قديرَ مستوى الجرعةِ التي يتعرض لها التـ قنيين والممرضين والأشخاصِ الآخرينِ الذي كانا متواجدين في المختبرِ الحارِ مِنْ قسمِ الطب النووي أثناء عملية الاستحلاب لمولد التكنشيوم 99م، وبعد ذلك تـ قارن نَتائِجَ الجرعة التي يتعرضوا لها مع المعايير الدوليةِ للو قاية من الإشعاعِ (ICRP)

استخدم في هذه الدراسة ماسح أشعاعي لـ قياس الجرعات الإشعاعية نوع (Victoreen 451)، ومنها وجدنا أن جرعةِ الإشعاع التي تتعرض لها يَدِّ التـ قني تـ قريبا 9.4 ملي سيفرت سنويا وهذه الجرعة تعتبر ا قل من حدود الجرعة المسموح 500ملي سيفرت سنويا,كذلك وجدنا أن الجرعة التي يتعرض لها التـ قني 3.6 ملي سيفرت سنويا وهذه أيضا ا قل من الجرعة المسموح بها 20 ملي سيفرت سنويا ، والجرعة التي يتعرض لها الممرض كانت 1ملي سيفرت سنويا وهي ا قل من المسموح بها 20 ملي سيفرت ، والمريض ايضا وجدنا انه يتعرض لجرعة 0.8 ملي سيفرت وهذه ا قرب قيمه الى المسموح بها 1 ملي

سيفرت للاشخاص غير العاملين. والمرافق للمريض يتعرض الى جرعه م قدارها 0.3ملي سيفرت وهذه الا قيمة ا قل من الحد المسموح به 1 ملي سيفرت ...

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