

بسم الله الرحمن الرحيم

اقرا باسم ربك الذي خلق (1) خلق الانسان من علق (2) اقرا
(وربك الاكرم (3) الذي علم بالقلم (4) علم الانسان ما لم يعلم (5)

صدق الله العظيم

Abstract

Breast cancer is one of the commonest cancers in Sudan and in early stage treated radically by external irradiation; therefore the main objective of this study was to evaluate the dose received by the critical organs in radical external breast cancer irradiation. These organs include; eye, thyroid, and shoulder joint where they located at the vicinity of the treatment region. The sample of this study consisted of 53 cancer patient treated at the Radiation and isotopes center in Khartoum in the period from may 2011 to march 2012. The data was collected by measuring the distances of these organs from the treatment fields (anterior supraclavicle and two tangential field), the applied field size, backscatter factor, output, given dose and the tumour dose. The %doses were calculated by using Day's method which is used to calculate the dose for a point outside the field size. The result of the study showed that the average %dose received by the eye, thyroid and shoulder from the anterior supraclavicle were equal to 2.4 ± 0.8 , 6.2 ± 1.4 and 8.5 ± 1.4 respectively while from the tangential field were 0.5 ± 0.2 , 0.8 ± 0.3 and 0.9 ± 0.4 respectively.

الخلاصة

سرطان الثدي هو واحد من أكثر أنواع السرطان شيوعا في السودان ويعالج في مرحلة مبكرة بشكل جذري بالإشعاع الخارجي، بالتالي فإن الهدف الرئيسي من هذه الدراسة تقييم الجرعة التي وردت إلى الأعضاء الحرجة في العلاج بالإشعاع الخارجي لسرطان الثدي تشمل هذه الأعضاء العين والغدة الدرقية ومفصل الكتف حيث يوجدوا في المنطقة المجاورة للمنطقة المعالجة. تتألف عينة الدراسة من 53 مريض بالسرطان تم علاجهم في مركز الإشعاع والنظائر المشعة في الخرطوم في الفترة من مايو 2011 إلى الفترة مارس 2012 تم جمع البيانات عن طريق قياس المسافات من الأعضاء في الحقول العلاجية (حقل الترقوة الأمامي والحقول المماسية)، حجم الحقل التطبيقي، عامل التشنت الارتدادي، الخرج، الجرعة المعطاة وجرعة الورم

تم حساب الجرعات باستخدام طريقة داي والتي تستخدم لحساب الجرعات في نقطة خارج حجم الحقل . أظهرت نتائج الدراسة ان متوسط نسبة الجرعة التي تلقتها العين، الغدة الدرقية ومفصل الكتف من حقل الترقوة الأمامي تساوي $2.4 \pm 0.8\%$ ، $6.2 \pm 1.4\%$ و 8.5% على التوالي في حين $1.4 \pm 0.9\%$ من حقل و $0.4 \pm 0.9\%$ على التوالي المماسية كانت $0.2 \pm 0.5\%$ ، $0.3 \pm 0.8\%$

Dedication

To

**MY FAMILY MOTHER FATHER BROTHERS
AND SISTER**

TO

MY FRIENDS

TO

EVERY ONE HELP ME

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I am deeply thankful to ALLAH the beneficent, for the progress and success I Gained in all my study It is a great pleasure to acknowledge all those people who had given me tremendous help and support in completing this study especially to my supervisor, Dr Mohamed Elfadil 'Sudan University of Science and Technology college of Medical Radiologic Science 'for his full guidance and assistance throughout the whole period of this study.

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