

بسم الله الرحمن الرحيم

Sudan University of Science and Technology

Collage of graduate studies

Evaluation of the Effect of Chemotherapy in
Hematological Parameters among Leukemic
Patients in Sudan

تقويم تاثير العلاج الكيميائي علي مكونات الدم لدي مرضي
سرطان الدم في السودان

A thesis submitted in partial fulfillment of the requirements for the
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال الله تعالى

وَقُلْ رَبِّ أَدْخِلْنِي مُدْخَلَ صِدْقٍ
وَأَخْرِجْنِي مُخْرَجَ صِدْقٍ وَاجْعَلْ لِي
مِنْ لَدُنْكَ سُلْطَانًا نَصِيرًا

سورة الإسراء الآية (80)

Dedication

I dedicate this research to

The person whose prayers help me &
encourage me to the way of success.....

My mother

.....

To the soul of my father and aunts
Who gave me meaning of being.....

My brothers and sister ...

For their support and kindness

My friends and my colleagues.....

The people, whom I love, respect and
appreciate

&

Everyone from whom I learned....

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& God bless us all.....

Mohammed Mubarak Omballi

ملخص الاطروحه

هذه دراسه اختباريه وصفيه اجريت في المركز القومي للعلاج بالاشعه والطب النووي بالخرطوم في الفتره من نوفمبر 2009 – ابريل 2010 . الهدف من هذه الدراسه هو تقييم تاثير العلاج الكيميائي علي بعض مكونات الدم عند السودانين المصابين بسرطان الدم بالمركز القومي للعلاج بالاشعه والطب النووي – الخرطوم .

عدد الاشخاص المضمنين في هذه الدراسه هم خمسون (35 ذكر و 15 انثي) تتراوح أعمار هؤلاء المرضى بين 16 الي 85 سنه . خمس وثلاثون من هؤلاء المرضى يخضعون للعلاج الكيميائي و 15 مريضا لم يخضعوا للعلاج الكيميائي حيث تم استخدامهم كمجموعه ضابطه .

جُمعت عينات الدم من المرضى الخاضعين للعلاج الكيميائي والذين لم يخضعوا للعلاج وتم اجراء الفحوصات المعملية التاليه : الهيموغلوبين , التعداد الكلي لكريات الدم الحمراء , نسبه تراكم الخلايا , التعداد الكلي لكريات الدم البيضاء . والتعداد الكلي للصفائح الدمويه باستخدام جهاز تعداد الدم الالكتروني (Sysmex)

تم رصد النتائج المتحصل عليها وإخضاعها للتحليل الاحصائي. وعند مقارنه النتائج المتحصل عليها من المرضى الذين يخضعون للعلاج الكيميائي بالنتائج المتحصل عليها من المرضى الذين لم يخضعوا للعلاج الكيميائي تبين أن هناك إنخفاض جوهري وذو دلالة إحصائية في نسبه الهيموغلوبين, ومتوسط التعداد الكلي لكريات الدم الحمراء , وإنخفاض جوهري وليس ذو دلالة احصائية في متوسط تعداد الصفائح الدمويه , وزيادة جوهريه وليست ذات دلالة إحصائية في متوسط التعداد الكلي لكريات الدم البيضاء.

ونستخلص من خلال النتائج المتحصل عليها في المرضى الذين يخضعون للعلاج الكيميائي (نقص الهيموغلوبين, ونقص متوسط التعداد الكلي لكريات الدم الحمراء ونقص متوسط التعداد الكلي للصفائح الدموية) أنهم يكونون أكثر عرضه للإصابه .
بالأنيميا والمشاكل النزفيه من المرضى الذين لم يخضعوا للعلاج الكيميائي

Abstract

The current study is a non-experimental hospital base case control study, conducted at Radiation & Isotopes Center- Khartoum (RICK) during the period November 2009/April 2010. The study aimed to evaluate the effect of chemotherapy in some hematological parameters among leukemic patients who referred to the Radiation & Isotopes Center – Khartoum. People recruited for this study were 50 leukemic patients. (35 males and 15 females). Their age ranged from 16 to 85 years with mean age of 49 years. Thirty- five patients were suffering from deferent types of leukemia (16 patients had acute myeloid leukemia AML, Three patients had acute lymphoblastic leukemia ALL, Four patients had chronic myeloid leukemia CML and 12 patients had chronic lymphoblastic leukemia CLL) received chemotherapy and the remaining 15 patients did not start treatment and were used as control.

Blood sample were collected from all patients (50 study subject).The blood samples were investigated for Hb, PCV and total RBCs count, WBCs & Platelets count. Using Sysmex automated hematology analyzer.

The results obtained from blood analysis of patients that received chemotherapy were compared with those from patients who did not start treatment, and are as follows:

There was significant ($P>0.05$) reduction in Hb and total RBCs count in patients who receive chemotherapy as compared to control patients who did not start treatment.

There was significant ($P>0.05$) decrease in total platelet count in patients who receive chemotherapy as compared to control patients who did not start treatment.

There was significant ($P>0.05$) increase in total WBCs count in patients who receive chemotherapy as compared to control patients who did not start treatment.

The result obtain from the current investigation are highly suggestive that patients under chemotherapy are at risk of anemia and bleeding problems.

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List of abbreviation

ALL	acute lymphoid leukemia
AML	acute myeloid leukemia
dl	decilitre
CLL	chronic lymphoid leukemia
CML	chronic myeloid leukemia
Cumm	mm ³
EDTA	Ethylenediamine tetra-acetic acid
FAB	French American British
fl	femtolitre

Hb	hemoglobin
mg	milligram
ml	milliliter
μl	microlitre
nm	nanometre
PCV	packed cell volume
Plt	platelet
RBCs	red blood cells
WBCs	white blood cells
RICK	Radiation & Isotopes Center- Khartoum
Yrs	years
%	percent