

بسم الله الرحمن الرحيم

(رَبِّ اغْفِرْ لِي وَلِوَالِدَيَّ وَلِمَن دَخَلَ بَيْتِي مُؤْمِنًا
وَلِلْمُؤْمِنِينَ وَالْمُؤْمِنَاتِ وَلَا تَجِدِ الظَّالِمِينَ إِلَّا تَبَارًا)

صدق الله العظيم

سورة نوح الآية 28

DEDICATION

To my Family for their support and love.

To my husband

To my brothers, sisters, friends and teachers

Rayan

ACKNOWLEDGMENT

First of all I would like to thank ALMIGTY ALLAH for giving me patience and help to complete this work.

It would not have been possible to accomplish this work without the help and support of the kind people around me; to all of them I am indebted and grateful.

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Abstract

This is a case-control study carried out in Radiation and Isotope Center Khartoum (RICK) from August to October 2014; aimed to assess the changes in the complete blood count (CBC) of chronic myeloid leukemia (CML) patients.

CBC was studied in 50 CML patients and compared with age- and sex-matched healthy controls. A written consent had been taken from them. A structured questionnaire was used to collect information about participants' age, sex and history of any disease or conditions that may interfere with the results. Three ml of venous blood was collected in EDTA anti coagulant container from both patients and control group. An automated hematological analyzer (SYSMEX KX-21N) was used to measure the blood count. Statistical package for social science (SPSS) computer program was used for data analysis.

CML patients registered significantly higher ($P \leq 0.05$) values than the control group for leucocytes count ($154.2 \times 10^3/\mu\text{L}$ versus $5.72 \times 10^3/\mu\text{L}$), eosinophil (5.04% versus $2.7\% \pm 0.3$), basophil ($4.0\% \pm 0.51$ versus $0.18\% \pm 0.03$) and platelets count ($335.7 \times 10^3/\mu\text{L}$ versus $274.6 \times 10^3/\mu\text{L}$).

Chronic myeloid leukemia caused a significantly lower ($P \leq 0.05$) values than the control group for the neutrophils ($37.2\% \pm 14.7$ versus $57.9\% \pm 10.33$), lymphocyte ($5.72\% \pm 4.3$ versus $33.9\% \pm 10.16$), monocyte ($3.32\% \pm 0.5\%$ versus $6.3\% \pm 2.3$), erythrocytes count ($2.09 \times 10^6/\text{L}$ versus $4.73 \times 10^6/\text{L}$) and hemoglobin ($9.35 \text{ g/dl} \pm 2.01$ versus $13.00 \text{ g/dl} \pm 1.56$).

Immature cells were not seen in the peripheral blood of the control group in contrast to CML patients among whom the following immature cells were found: stab cells ($11.78 \pm 1.58\%$), metamyelocyte ($11.85 \pm 1.59\%$), myelocyte ($12.41 \pm 1.32\%$), promyelocyte ($6.43 \pm 0.79\%$), myeloblast ($2.33 \pm 0.25\%$) and nucleated red blood cells ($2.33 \pm 0.25\%$).

It is concluded that chronic myeloid leukemia causes significant changes in the CBC and so CML can be suspected on this basis.

Further studies should be done by performing bone marrow biopsy and detection of Philadelphia chromosome.

ملخص الدراسة

هذه دراسة الحالات والشواهد التي أجريت في الإشعاع والنظائر مركز الخرطوم (RICK) من أغسطس حتى أكتوبر 2014م تهدف لتقييم التغيرات في تعداد الدم الكامل (CBC) من سرطان الدم النخاعي المزمن (CML) من المرضى.

وقد درس CBC في 50 مريضاً CML ومقارنة مع الأصحاء السن والمطابقة الجنس. وتم اتخاذ موافقة خطية منها وتم استخدام الاستبيان منظم لجمع المعلومات عن المشاركين العمر والجنس والتاريخ من أي مرض أو الظروف التي قد تتداخل مع النتائج. وقد تم جمع ثلاثة مل من الدم الوريدي في EDTA حاوية مكافحة تجلط الدم من كل من المرضى ومجموعة التحكم. تم استخدام محلل الدموية الآلي (SYSMEX KX-21N) لقياس تعداد الدم. تم استخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS) برنامج كمبيوتر لتحليل البيانات.

مرضى CML مسجلة أعلى بكثير ($P \leq 0.05$) القيم من السيطرة على المجموعة لكريات الدم البيضاء العدد

(5.04% versus 2.7%±0.3) ایزنوفیل ($154.2 \times 10^3/\mu\text{L}$ versus $5.72 \times 10^3/\mu\text{L}$)

(335.7x10³/ μL versus 274.6x10³/μL). والصفائح الدموية

تسبب سرطان الدم النخاعي المزمن أقل بكثير ($P \leq 0.05$) القيم من السيطرة على المجموعة ($37.2\% \pm 14.7$ مقابل، $57.9\% \pm 10.33$) ، $5.72\% \pm 4.3$ مقابل $33.9\% \pm 10.16$ ، مونوسايت $6.3\% \pm 2.3$ versus $3.32\% \pm 0.5$)، عدد كريات الدم الحمراء $2.09 \times 10^6 / L$ مقابل $4.73 \times 10^6 / L$ والهيموغلوبين $9.35 \text{g/dl} \pm 2.01$ versus $13.00 \text{g/dl} \pm 1.56$).

لم ينظر إلى خلايا غير ناضجة في الدم المحيطي من السيطرة على المجموعة وعلى النقيض من مرضى CML بينهم تم العثور على خلايا غير ناضجة التالية طعنات (11.78 ± 1.58 %، الميئاميلوسايت (11.85 ± 1.59 %، مائلوسايت (12.41 ± 1.32 %، برونليسايت (6.43 ± 0.79 %، مائلوسايت (2.33 ± 0.25 % (وخلايا الدم الحمراء الأنوية (0.25 ± 2.33 %). وخلصت الدراسة إلى أن سرطان الدم النخاعي المزمن يسبب تغيرات كبيرة في CBC وذلك CML يمكن أن يشتبه على هذا الأساس.

وينبغي أن يتم إجراء المزيد من الدراسات عن طريق إجراء خزعة نخاع العظام والكشف عن صبغي
فيلادلفيا.

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Abbreviation

CML : chronic Myeloid Leukemia

AML : Acute Myeloid Leukemia

ALL : Acute Lymphoblastic Leukemia

CBC : Complete Blood Count

CGL : Chronic Granulocytic Leukemia

EDTA : Ethylene Diamine Tetra Acetic

Hb : Hemoglobin

MCH : Mean Corpuscular Hemoglobin

MCHC : Mean corpuscular hemoglobin Concentration

MCV : Mean Corpuscular Volume

PCV : Packed Cell Volume

Ph : Philadelphia Chromosome

Plt : Platelet

RBCs : Red Blood Cells

RNA : Ribo Nucleic Acid

SPSS : Statistical Package for Social Science

TWBCs : Total White Blood Cells

WBCs : White Blood Cells