بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى :

رَبِّ اغْفِرْ لِي وَلِوَالِدَيَّ وَلِمَنْ دَخَلَ بَيْتِيَ مُؤْمِنًا وَلِلْمُؤْمِنِينَ وَالْمُؤْمِنَاتِ وَلَا تَزِدِ الظَّالِمِينَ إِلَّا تَبَارًا

صدق الله العظيم

سورة نوح الآية ٢٨

Dedication

To the soul of my father

To my loved mother

To my loved husband

To my loved brothers

Acknowledgment

First and foremost I am grateful to Allah for providing me health and strength to conduct the present study.

I would like to express my deepest gratitude and sincere appreciation to my supervisor Prof. Shadia Abdelate Omer for her critical supervision, keen advice, guidance, encouragement and for the considerable assistance throughout this work.

I would like to express my sincere thanks and appreciation to my family, mother, husband, brothers, and friends for their assistance and encouragement.

My sincere and very special thanks for the group who participated on this study.

Abstract

Diabetic patients are at a high risk of developing micro and macro vascular diseases. Mean platelet volume (MPV) and platelet distribution width (PDW) are indicators of platelet function and activity and they have been reported to be influenced significantly by diabetes. These changes may have a role in the genesis of diabetic vascular disease.

The present study aims to measure the changes in platelets count, MPV, PDW and P-LCR in patients with type2 diabetes mellitus.

The study was conducted at Ibrahim Shams Alden Hospital in Khartoum North on 60 patients of both sexes with type2 DM. Platelet count and platelets indices that are mean platelet volume (MPV), platelet distribution width (PDW) and platelet large cell ratio (P-LCR) were measured using an automated blood cell counter. The value of these tests was compared to matched control group of 40 non-diabetic subjects.

Diabetics registered significantly higher ($P \leq 0.01$) values than non-diabetics for MPV (10.26±1.0 vs. 9.12±0.7fL), PDW (13.83±4.0 vs. 11.84±1.6fL), P-LCR (27.49±7.6 vs. 19.87±4.7%) and lower values for platelets count (244.88±78.3 vs.262.27±63.0) (x10/L) respectively. No significant variations were observed in the studied indices with respect to sex or duration of the disease. Platelet indices are significantly affected by type2 DM. Their clinical utility and association with disease activity in patients with DM should be further investigated.

□□□□□□□□□

أكثر مرضي السكري عرضة لمخاطر أمراض الأوعية الدموية. متوسط حجم الصفائح الدموية وعرض توزيع الصفائح الدموية هي مؤشرات وظائف ونشاط الصفائح الدموية والتي تم الإبلاغ عن أنها تتأثر بشكل كبير من قبل مرض السكري.

وقد يكون لهذه التغييرات دورا في نشأة أمراض الأوعية الدموية.

هدف هذه الدراسة إلى قياس التغيرات التي تحدث في عدد الصفائح الدموية ,متوسط حجمها و عرض توزيعها في المرضى الذين يعانون من مرض السكري غير المعتمد علي الانسولين والضوابط.

أجريت هذه الدراسة التحليلية في مستشفى ابراهيم شمس الدين ببحري ,تألفت هذه الدراسة من 60 شخص من مرضى السكري من الجنسين لقياس عدد الصفائح الدموية ومتوسط حجم الصفائح الدموية و عرض توزيع الصفائح الدموية ونسبة الصفائح الدموية الخلية الكبيرة تم قياسها باستخدام عداد خلايا الدم الآلي, بينما جمعت 40 عينة دم للمقارنة من بعض المتطوعين الاصحاء.

من غير المصابين بالسكري ($P \leq 0.01$) مرضي السكري المسجلين ذات دلالة احصائية أعلي بكثير وعرض توزيع الصفائح الدموية (13.83± 1.0±10.26 vs. 9.12±0.7fL) لمتوسط حجم الصفائح الدموية و قلة في عدد (4.0 vs. 11.84±1.6fL) 7.6±27.49)) ونسبة الصفائح الدموية الخلية الكبيرة (vs. 19.87±4.7% 78.3±244.88) الصفائح الدموية vs. 262.27±63.0x10^9/l)

يتأثر حجم الصفائح الدموية وعرض توزيع الصفائح الدموية ونسبة الصفائح الدموية الخلية الكبيرة بالسكري من النوع الثاني. فوائد مؤشرات صفائح الدم وعلاقتها مع نشاط المرض في المرضي الذين يعانون من السكري تحتاج لمزيد من التحقق.

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List of Abbreviations

CBC: Complete Blood Count

CI: Confidence Intervals

DC: Direct Current

DM: Diabetes Mellitus

DNA: Deoxyribonucleic Acid

DW: Distribution Width

EDTA: Ethylene Diamine Tetra acetic Acid

fL: femto Litre

Hb A_{1C}: Hemoglobin $A_{1c.}$

HDL: High- Density Lipoprotien

HIT: Heparin induced Thrombocytopenia

IDDM: Insulin Dependent Diabetes Mellitus

IFG: Impaird Fasting Glucose

K_3 EDTA: Tri potassium of Ethylene Diamine Tetra Acetate

LD: Lower Discriminator

M: Mean

MP: Multiple Peaks

MPV: Mean Platelet Volume

N.S: Not Significant

NIDDM: Non- Insulin dependent diabetes mellitus

PCT: platelet-Crit

PL: Platelet Lower PDGF: Platelet Derived Growth Factor

PDW: Platelet Distribution Width

P-LCR: Platelet Large Cell Ratio

PLT: Platelet

PRP: Platelet-Rich Plasma

PU: Platelet Upper

SD: stander Deviation

TGF-beta: Transforming Growth Factor-beta

TTP: Thrombotic thrombocytopenic purpura

UD: Upper Discriminator