

Dedication

.....To my mother

.....To my father

**To my
.....brothers**

**To my
.....sisters**

**To my
.....friends**

...To my colleagues

**I dedicate this work with
my best wishes to all**

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All my thanks are in the name of Allah,
.the most Gracious and the most Merciful

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Abbreviations

.ADA : American Diabetes Association

.BUN : Blood urea nitrogen

.CG : Cockcroft-Gault

.CrCl : Creatinine clearance

.DM : Diabetes mellitus

.g/day : Gram/day

.GFR : glomerular filtration rate
.HDL : High density lipoprotein
.KG : Kilogram
.MDRD: Modification of diet in renal disease
.mg/dl : Milligram/deciliter
.ml/min : Milliliter/minute
.NSAIDs : Non steroidal anti-inflammatory drugs
.OGTT : Oral glucose tolerance test
.STD : Standard
.UTI : urinary tract infection

Abstract

The objective of this study is to determine the level of creatinine clearance among Sudanese diabetic patients and compare it with a healthy control group.

Diabetic nephropathy is a progressive [kidney disease](#) caused by [angiopathy](#) of [capillaries](#) in the [kidney glomeruli](#). It is due to longstanding [diabetes mellitus](#).

Cross –sectional descriptive study was conducted in Shendi town during the year 2011. The study included 150 subjects, 100 of them were diagnosed as diabetics and 50 of them were apparently healthy individuals as control group. Their ages were ranged from 17 to 90 years, 37% of them were males and 63% of them were females.

Venous blood sample were obtained from diabetic patients and control group for serum creatinine by Jaffe kinetic method, spectrophotometer is used, then calculate the creatinine clearance by The Cockcroft-Gault formula by using serum creatinine, weight and age.

The results had shown that the mean of creatinine clearance in diabetic patient was lowered (79.1 ml/minute) when it compared to control group (102.9 ml/minute) with significance correlation(p.value =0,000). The study also showed the creatinine clearance was lower in type I diabetic patients (67.4 ml/minute) when compared to type II diabetic patients (83.4 ml/minute) with significance correlation(p.value =0,000). The study also showed the mean of creatinine clearance in diabetic patient with age less than 40 year was 75.8 ml/minute, and in age between 40 – 49 year were 80.5 ml/minute, and age of 50 to 59 was 79.4 ml/minute and in age more than 60 year was 62.8 ml/minute.

The study also showed the mean of creatinine clearance in male diabetic patient was 76.9 ml/minute and in female patient was 80.3 ml/minute with insignificance correlation (p.value =0,66).

The study also showed the mean of creatinine clearance in diabetic patient that has regular exercise was 83.7 ml/minute and in patient irregular exercise was 73.8 ml/minute with significance correlation (p.value =0,05).

The study also showed the mean of creatinine clearance in diabetic patient with weight less than 50 Kg was 60.5 ml/minute, and in weight between 50 – 59 Kg was 61.3 ml/minute, and in weight of 60 to 69 Kg

was 80 ml/minute, and in weight of 70 to 79 Kg was 81.1 ml/minute and in weight more 79 Kg was 98.9 ml/minute.

The study also showed the mean of creatinine clearance in diabetic patient with duration of disease 1- 5 year was 86 ml/minute, and in diabetic patient with duration of disease 6- 10 year was 75.1 ml/minute, and diabetic patient with duration of disease more than 10 year was 74.9 ml/minute.

.The study Show there is 5% (n=5) of the patient have proteinuria

ملخص البحث

تهدف هذه الدراسة إلى قياس مستوى التصفية الكلوية عند مرضي السكري ومقارنتها بمجموعة من الأصحاء كعينة ضابطة. وقد أجريت هذه الدراسة المقطعية بمدينة شندي خلال العام 2011م. الاعتلال الكلوي السكري هو مرض كلوي متدرج يتسبب باعتلال الشعيرات الدموية الكلوية والكبيبات وينتج عن مرض السكري بعد الألمان.

وشملت الدراسة 150 شخص، عبارة عن مرضي السكري كمجموعة اختبار (100 شخص) وأصحاء (50 شخص) كمجموعة ضابطة، بلغت نسبة الذكور منهم 63% و تتراوح أعمارهم ما بين 17 و 90 سنة. وقد تم اخذ عينات دم وريدية من المجمعتين لقياس مادة الكرياتينين باستخدام جهاز الاسبكتروميتر ومن ثم

حسب التصفية الكلوية بمعادلة (س - ج) باستخدام الكرياتينين، الوزن والعمر.

أوضحت الدراسة أن مستوى التصفية الكلوية عند مرضي السكري اقل مما هي عليه عند المجموعة الضابطة إذ بلغت عندهم 79.1 مل/الدقيقة، أما عند مجموعة الأصحاء فبلغ 102.9 مل/الدقيقة مع وجود علاقة احصائية قوية ($p.value=0.00$).

كذلك أوضحت الدراسة أن مستوى التصفية الكلوية عند مرضي السكري من النوع الأول (67.4 مل/الدقيقة) اقل مما هي عليه عند مرضي السكري من النوع الثاني (83.4 مل/الدقيقة) مع وجود علاقة احصائية قوية ($p.value=0.00$).

كذلك أوضحت الدراسة أن مستوى التصفية الكلوية عند مرضي السكري الذين يمارسون الرياضة بطريقه منتظمه (83.7 مل/الدقيقة) اكبر مما هي عليه عند مرضي السكري الذين لا يمارسون الرياضة بطريقه منتظمه (73.8 مل/الدقيقة) مع وجود علاقة احصائية قوية ($p.value=0.00$).

كذلك أوضحت الدراسة أن مستوى التصفية الكلوية عند مرضي السكري الرجال من (76.9 مل/الدقيقة) اقل مما هي عليه عند مرضي السكري النساء (80.3 مل/الدقيقة) مع عدم وجود علاقة احصائية ($p.value=0.66$).

كذلك أوضحت الدراسة أن مستوى التصفية الكلوية عند مرضي السكري فى الفئة العمرية أقل من 40 عام (75.8 مل/الدقيقة) وفى الفئة العمرية ما بين 40- 49 عام (80.5 مل/دقيقه) وفى الفئة العمرية ما بين 50- 59 عام (79.4 مل/الدقيقة) . وفى الفئة العمرية اكثر من 60 عام (62.8 مل /دقيقه).

كذلك أوضحت الدراسة أن مستوى التصفية الكلوية عند مرضي السكري الذين كانت اوزانهم اقل من 50 كيلو جرام (60.5 مل/دقيقه). والذين تبلغ اوزانهم ما بين 50-59 كيلوجرام (61.3 مل/دقيقه). والذين تبلغ اوزانهم ما بين 60- 69 كيلوجرام (80 مل/دقيقه). والذين اوزانهم اكبر من 79 كيلو جرام (98.9 مل/دقيقه).

كذلك أوضحت الدراسة أن مستوى التصفية الكلوية عند مرضي السكري الذين بلغت فتره المرض لديهم من 1-5 سنوات (86 مل/دقيقه) والذين بلغت فتره المرض لديهم من 6-10 سنوات (75.1 مل/دقيقه) والذين بلغت فتره المرض لديهم اكثر من 10 سنوات (74.9 مل /دقيقه).

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