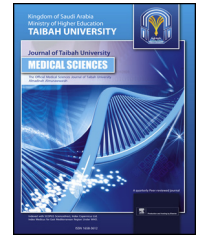




Taibah University

Journal of Taibah University Medical Sciences

www.sciencedirect.com



Student Article

Factors affecting albuminuria in diabetic patients at King Fahad Hospital in Almadinah Almunawwarah



Dhafer G. Al-shehri*, Muatasim M. NoorElahi, Mohammed A. shaheen, Abdulrahman H. Samman, Abdulrahman A. Soubhanneyaz, Osama A. Bakkari and Majid A. Al-beladi

^a College of Medicine, Taibah University, Almadinah Almunawwarah, KSA

Received 3 May 2014; revised 23 September 2014; accepted 24 September 2014; Available online 29 December 2014

المخلص

أهداف البحث: تحديد العوامل المرتبطة بظهور البيلة البومينية لدى مرضى السكري.

طرق البحث: أجريت الدراسة بطريقة دراسة الحالات والشواهد في المستشفى. بحيث قورن ٥٠ مريضاً مصاباً باعتلال الكلى السكري مع ١٠٠ مريضاً بداء السكري بدون اعتلال الكلى. جمعت البيانات عن طريق استبانة ومقابلة مع المرضى. حسب التكرار والنسب المئوية والمتوسط الحسابي. وأجريت التحليل الإحصائية باستخدام "مربع كاي"، واختبار "ت" والانحدار اللوجستي أحادي التغيرات. واعتبرت القيمة الاحتمالية > 0.05 ذات أهمية.

النتائج: أظهر تحليل الانحدار اللوجستي أحادي التغيرات ارتباطاً واضحاً بين التقدم في العمر (نسبة الأرجحية=٨.١) (نطاق الثقة ٩٥٪ = ٢.٢-٣٠.١)، "والجنس" ذكر (نسبة الأرجحية=٢.٤) (نطاق الثقة ٩٥٪ = ١.١٨-٤.٩٩)، ومدة الإصابة بمرض السكري الأعلى من ١٠ سنوات (نسبة الأرجحية=٤.٢٣) (نطاق الثقة ٩٥٪ = ١.٦-١٥.٤)، وارتفاع ضغط الدم بكل درجاته البسيط والمتوسط والشديد، وكانت نسبة الأرجحية ٥.٢ (نطاق الثقة ٩٥٪ = ٢.٣-١١.٧) و ٥.١ (نطاق الثقة ٩٥٪ = ١.٥-١٦.٩) و ١٥.٢ (نطاق الثقة ٩٥٪ = ٣.٧٧-١٠٨.١) على التوالي. بينما كانت أمراض القلب (نسبة الأرجحية=٣.٧٧) (نطاق الثقة ٩٥٪ = ١.٦-٨.٧) واستخدام مثبطات الإنزيم المحول للأنجيوتنسين ومحصرات مستقبلات الأنجيوتنسين ٢ (نسبة الأرجحية=٨.١) (نطاق الثقة ٩٥٪ = ١.٨-١٨.٢) وانخفاض مستوى الجلوسيد الثلاثي (نسبة الأرجحية=٠.٣٨) (نطاق الثقة ٩٥٪ = ٠.١٠-٠.٨١).

الاستنتاجات: أظهرت ستة عوامل علاقة ذات دلالة احصائية تؤدي إلى تفاقم البيلة البومينية لدى مرضى السكري. التقدم في العمر والجنس الذكري وهما من العوامل التي تتبأ بأعلى ظهور للبيلة البومينية. وكذلك أمراض القلب، وضعف السيطرة على ارتفاع ضغط الدم، واستخدام أدوية الضغط (مثبطات الإنزيم المحول للأنجيوتنسين ومحصرات مستقبلات الأنجيوتنسين ٢). كما يرتبط انخفاض مستويات الجلوسيد الثلاثي بشكل كبير بانخفاض البيلة البومينية. المستويات العالية من الهيموجلوبين الغليكوزيلاتي تظهر أقل نسبة بيلة البومينية بينما مؤشر كتلة الجسم، والتدخين واعتلال الشبكية لا علاقة لهم بالبيلة البومينية.

الكلمات المفتاحية: البيلة البومينية؛ عوامل؛ مرض السكري؛ اعتلال الكلى

Abstract

Objective: To identify factors associated with development of albuminuria in diabetic patients.

Methods: A hospital based case-control study. Fifty diabetic nephropathy patients were compared with 100 diabetic patients without nephropathy. Data were collected using an interview questionnaire. Frequencies, percentages and mean were calculated. Chi-square test, T-test and Univariate logistic regression analysis were used. $P < 0.05$ was considered significant.

Results: An Univariate logistic regression analysis has shown significant associated factors including old age (OR = 8.1) (95%CI = 2.2–30.1), sex (male) (OR = 2.4) (95%CI = 1.18–4.99), the duration of diabetes mellitus above 10 years OR = 4.23 (95%CI = 1.6–15.4), associated mild, moderate, and severe hypertension ORs were 5.2 (95%CI = 2.3–11.7), 5.1 (95%CI = 1.5–16.93) and 15.2 (95%CI = 1.4–158.1), respectively, cardiac disease (OR = 3.77) (95%CI = 1.6–8.7), using Angiotensin-Converting Enzyme Inhibitors (ACEIs) and Angiotensin II Receptor Blockers (ARBs) (OR = 8.1)

* Corresponding address: College of Medicine, Taibah University, Almadinah Almunawwarah, KSA.

E-mail: d.dafher@hotmail.com (D.G. Al-shehri)

Peer review under responsibility of Taibah University.



Production and hosting by Elsevier

1658-3612 © 2014 The Authors.

Production and hosting by Elsevier Ltd on behalf of Taibah University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). <http://dx.doi.org/10.1016/j.jtumed.2014.09.004>

(95% CI = 3.61–18.2), low triglyceride level (OR = 0.38) (95% CI = 0.10–0.81).

Conclusion: Six factors showed a significant positive relationship to the progression of albuminuria in diabetic patients. Older age and males were found to be predictors of high albuminuria. Also, cardiac disease, poor hypertension control, the use of ACEIs or ARBs were found to be predictors of higher albuminuria. Low triglyceride levels were significantly associated with low albuminuria. Higher levels of HbA1c showed less albuminuria while body mass index, smoking and retinopathy showed no association to the albuminuria.

Keywords: Albuminuria; Diabetes mellitus; Factors; Nephropathy

© 2014 The Authors.

Production and hosting by Elsevier Ltd on behalf of Taibah University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Diabetes mellitus (DM) is a worldwide health problem that affects many people and is accompanied by severe complications that negatively affect these individuals.¹ In the Kingdom of Saudi Arabia, DM appears as a major public health issue at levels parallel to the worldwide diabetes pandemic.² The prevalence of DM is rapidly increasing all over the world.¹ Its prevalence among adults in the Kingdom of Saudi Arabia is at 23.7%, a value that is expected to increase in the future.²

Diabetic nephropathy (DN) can be a kidney disease or kidney damage resulting from diabetes without unknown causes. Uncontrolled high blood sugar levels are believed to be one of the causes of kidney damage.³ DN, also called Kimmelstiel–Wilson disease, is characterized by a progressive rise in urine albumin excretion, increased blood pressure, a relentless decline in glomerular filtration, and ultimately end-stage kidney failure.⁴ Diabetes is the fifth leading cause of death according to the Center of Disease Control while kidney disease is ranked ninth.⁵ A downgrade of kidney function over time has been the nexus between initial glomerular filtration rate, initial urinary albumin excretion rate (UAE), hyperglycemia, and age.⁶

Increased urinary protein excretion is the earliest clinical manifestation of diabetic nephropathy.⁴ However, tight control of blood glucose levels has been shown to reduce the development of nephropathy but did not reverse nephropathy once protein (albumin) began passing into the urine.^{3,7} In many countries, there is a marked and remarkable increase in the incidence of patients with diabetic nephropathy that have reached end-stage kidney disease over recent decades.^{8,9}

Persistent microalbuminuria (urinary albumin excretion rate between 30 and 300 mg/24 h) may be indicative of early diabetic nephropathy. This is also an established risk factor

for the development of macroalbuminuria (urinary albumin excretion rate greater than 300 mg/24 h).¹⁰

Since 1990, the incidence of end stage kidney disease has doubled in the U.S. and diabetic nephropathy is now the single most common cause of end-stage kidney failure worldwide.¹¹

Materials and Methods

This was a hospital-based case control study. The subjects were 50 diabetic nephropathy patients who were randomly selected from the nephrology unit of King Fahad Hospital. We selected every other patient having all inclusion criteria. These patients were compared with 100 diabetic patients who were without nephropathy and chosen randomly from the diabetic center of the same hospital. These groups were used to determine the risk factors of developing nephropathy among diabetic patients.

Patients with other kidney diseases, especially stone and prostate diseases were excluded from this study. Patients with systemic diseases, like heart failure or liver disease, were excluded as well. Additionally, patients who were morbidly obese or of an extreme age (younger than 20 or older than 70) were excluded from the study.

Diagnosis of diabetic nephropathy depended on the detection of albuminuria by using microassays and dip-stick.

Informed consent was obtained verbally from each patient who cooperated in the study. An administrative agreement was made between the Head of the Nephrology Unit and Diabetic Center of King Fahad Hospital.

Socio-demographic, life style, and medical conditions data were collected from the subjects using a pre-designed questionnaire and the Lab results were taken from the patients' medical files. Socio-demographic data included several criteria: age (20 to <40, 40 to <60 and 60–70 years of age), sex (male or female), residence (urban or rural); marital status (single, married, divorced or widowed), educational status (illiterate, elementary, intermediate, high school, and university or higher), occupation (unemployed, housewife, non-skilled worker, skilled worker, employee, professional or retired), and family history of diabetes mellitus and hypertension (HTN) (1st relative, 2nd relative, or no family history). Life style factors included smoking (currently smoker, never smoked, or ex-smoker); if smokers, patients were put into three categories according to the duration of smoking in years, the mean number of cigarettes per day (heavy, moderate, or mild smoking) which are equal to ≥ 21 , 11–20, and 1–10 cigarettes per day, respectively; patients' body mass index (BMI) was classified into four categories, underweight, normal, overweight, and obese which equals <18.5, 18.5–24.9, 25–29.9, and ≥ 30 , respectively. The subjects' medical conditions included a medical history about the duration of diabetes mellitus and hypertension; and associated HTN, which was divided into four categories according to systolic blood pressure, normotensive, mild, moderate, and severe hypertension which equals ≤ 129 , 130–150, 151–180, and ≥ 180 mmHg, respectively. There was a special reference to related diseases (e.g., diabetic retinopathy, cardiac disease, liver disease, and previous kidney disease) and to history of significant drug usage such as angiotensin-converting-enzyme inhibitor (ACEIs), Angiotensin II receptor blockers (ARBs) and non-steroidal anti-inflammatory drugs (NSAIDs). The

Download English Version:

<https://daneshyari.com/en/article/3484376>

Download Persian Version:

<https://daneshyari.com/article/3484376>

[Daneshyari.com](https://daneshyari.com)