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Determining the Prevalence of CKD in Type 2 Diabetes Patients Iraqi

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Abstract: A cross-sectional study was conducted in Iraq, where 150 patients were collected from several different hospitals, and this paper aims to determine the prevalence of chronic kidney disease, its categories, and its relationship to many demographic and clinical factors for ages between (45-80) years patients with type 2 diabetes in Iraq. This study was designed through a questionnaire that was distributed to patients in a period of time. During a period of 6 months (9-13-2020 to 4-5-2021), the required approvals and licenses were obtained from the relevant committees for the purpose of this study and distributing of the questionnaire to patients. A univariate logistic regression model for risk factor analysis was conducted, which identifies advanced age, treated hypertension, and the presence of high comorbidities as possible factors for CKD in diabetic patients, and a significant relationship was found at ages 70–80 years with CI-95%5.6 (3.5–10.9) at p-value 0.000, High comorbidity 4.3 (3.1 – 5.5) at p-value 0.002.

Keywords: CKD, BMI, diabetes, questionnaire, RRT.

INTRODUCTION

Recent years have been marked by a significant increase in the number of patients with diabetes (DM) and chronic kidney disease (CKD) in the world. These two major medical problems are closely related, with diabetes taking a leading position among the causes of kidney disease. [NIDDK, 2014]. According to the Hospital Data System in Iraq, in 2020, the number of diabetic patients with ESRD reached 10,000 patients per million population [Hanssen, K. F, 1997]. Even in countries with a relatively low incidence of DM - Australia and New Zealand - there has been an almost twofold increase in the number of patients with ESRD due to DM (DM2) [Avignon, A. *et al*., 1997].

It is expected that the largest number of diabetic patients will be at high risk of developing associated kidney disease [Polonsky, K. S. *et al*., 1988; Wong, M. G. *et al*., 2016; LeRoith, D. *et al*., 2007]. The lack of scientific studies in diabetic patients with primary and intermediate renal failure makes it difficult to predict the dynamics of prevalence of ESRD and the need for Renal Replacement Therapy (RRT). [Go, A.S. *et al*., 2004; Perlman, R. L. *et al*., 2005].

Chronic kidney disease (CKD) is one of the most common and devastating complications of type 2 diabetes (T2DM). DM2 patients often have chronic kidney disease in addition to significantly increased cardiovascular morbidity and mortality [Yokoyama, H. *et al*., 2018; Kazancioglu, R, 2013; Levey, A. S. *et al*., 2012].

During the past decades, all over the world, the proportion of patients with end-stage chronic kidney disease (ESRD) has increased dramatically. In Iraq, as in many parts of the world, diabetic nephropathy (DN) is the leading cause of ESRD and is a public health problem associated with high morbidity, mortality, high costs, and low quality of life. With the data taken from Iraqi hospitals in the last five years to chronic renal disease, the incidence of end-stage renal disease due to type 2 diabetes (DM2) increased from 101 patients per million population. [Neuen, B.L. *et al*., 2017; NIHCE, 2008; NKF, 2019].

MATERIAL AND METHOD

Patient Sample

An observational, cross-sectional, multicentre, national study was conducted for Determining the prevalence of CKD in Type 2 diabetes patients in Iraqi for age between (45-80) years.

The study population includes patients diagnosed with DM2 in the clinical history, according to Diabetes Association criteria at 65 years of age with 150 patients.

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Study Design

In this study, 150 patients were included, distributed into two groups (100 groups of patients with type 2 diabetes) (and 50 control groups).

This study was designed by distributing a questionnaire to patients to know the type of effects that occur with the signature of not participating in other studies and the inclusion crossings in this study (patients aged between 45-80 years, diabetics, and those suffering from chronic kidney disease) were Excluded patients under the age of 45 years who suffer from diseases that lead to death.

Were included in this study, primary data of patients (height, age, sex, body mass index, smoking, alcohol) were included.

STUDY PERIOD

Patient demographic information and data were collected during a period of 6 months (9-13-2020 to 4-5-2021), and the required approvals and licenses were obtained from the relevant committees for the purpose of conducting this study and distributing the questionnaire to patients.

Aim of Research

This study aims to Determining the prevalence of CKD in Type 2 diabetes patients in Iraqi and to determine the prevalence of chronic kidney disease, its categories, and its relationship to many demographic and clinical factors for ages between (45-80) years of patients with type 2 diabetes in Iraq.

RESULTS

Table 1: Clinical, demographic results of patients

Variable	Patient	Control	P value
Age	59.4±15.6	55±12	0.88
Sex			
Male	66	30	<0.001
Female	34	20	<0.001
BMI	29±4.2	28.6±3.5	0.511
Charleston Index	3.1 (1.6)	2.65 (1.7)	0.77
Smoking			
Yes	30	5	0.34
No	70	45	0.68
Alcohol (%)			
Yes	2%	0.98%	0.69
No	98%	99.2%	0.55

Table 2: Biological results of patients, N=150

Biological results			
HbA1c (٪)	Patient	Control	
Total cholesterol (mg/dL)	182.1 (37.5)	150 (30.2)	<0.001
HDL (mg/dL)	55.5 (16.89)	44.1 (13.9)	<0.001
LDL-cholesterol (mg/dL)	120 (20.1)	90(9.2)	0.123
Triglycerides (mg/dL)	160.8 (70.9)	130 (63.9)	0.812
Hg (g/dl)	14.3 ± 0.7	14.5 ± 1.7	0.23
Crp	1.02 ± 0.3	0.93 ± 0.4	0.766
EFG	67.5 ± 21	80.3 ± 77	0.98

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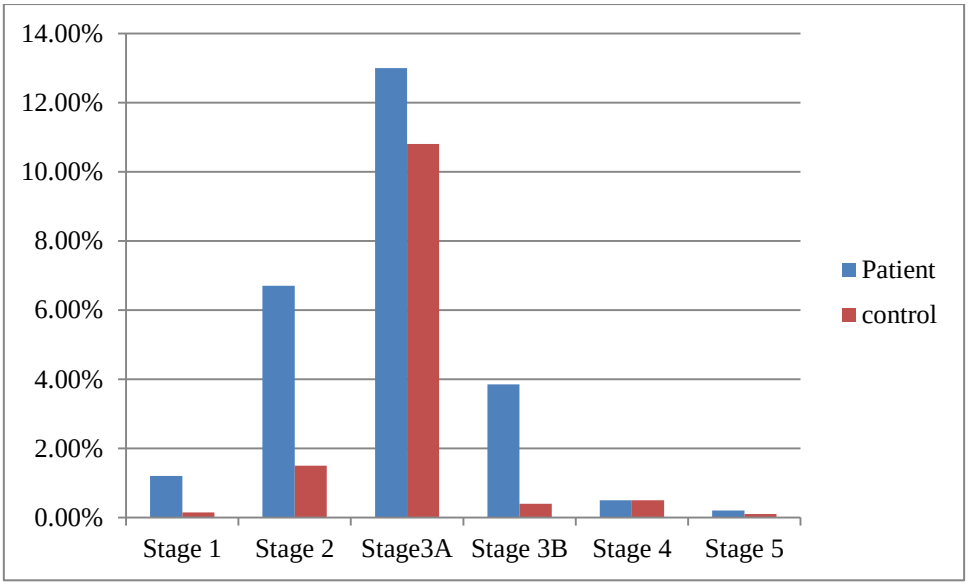

Figure 1: Outcomes of patients according to Stages of chronic kidney disease

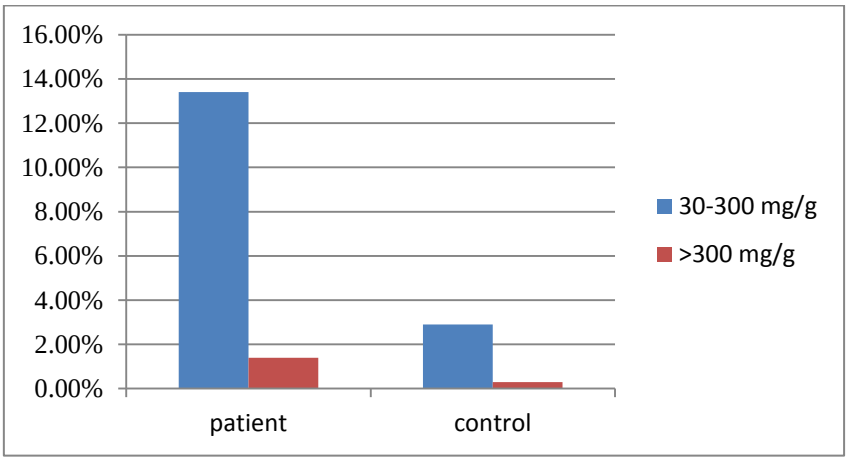

Figure 2: Results of the patient according to Albuminuria

Table 3: Univariate logistic regression model for risk factor analysis

Variable	Univariate logistic regression	
age	OR (IC 95%)	p-values
70 – 80 years	5.6 (3.5 – 10.9)	<0.001
< 60 years	3.3 (1.5-5.3)	0.000
HBA1c ≥ 8.5%	2.2 (1.09 – 3.3)	0.029
BMI Group ≥30	3.2 (2.5 – 7.1)	0.101
Gender (female vs. male)	1.1 (0.99 – 1.8)	0.78
Charlson group (absence)	2.9 (1.5-4.4)	0.001
Low comorbidity	1.91 (0.68 – 1,51)	0.677
High comorbidity	4.3 (3.1 – 5.5)	0.002

DISCUSSION

In this study, a total of 150 patients were from several different hospitals in Iraq, where a cross-sectional study was conducted to patients with type 2 diabetes for the purpose of knowing the prevalence of CKD, and the study was conducted by relying on the statistical analysis program SPSS IBM Soft 22.

This study was divided into two groups (patients 100 patients, control group 50), and the average age ranged between 45 to 80 years, and a higher age was noted in the group of patients compared to the control group.

In this study, patients were more prevalent in both groups of males than females. A high body mass index was detected at ages ranging from 70-80

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years, and a high percentage of smokers was observed for 30% of patients, as shown in Table 1.

In this study, a high percentage of the biological results was revealed in the group of patients, where the total cholesterol (mg/dL) was 182.1 (37.5), and the results showed a relative increase in LDL-cholesterol to the patients at 120 (20.1). In addition, the results recorded the presence of A noticeable rise in triglycerides in 59% of patients, with a rate ranging between 120-220 mg/dl.

The recurrence rate of CKD in this group is very high, 25%, which means that 1 in 4 patients with CKD will increase the already elevated cardiovascular and renal risks. In addition, another factor affecting morbidity, mortality, and progression of CKD was added, such as the high prevalence of microalbuminuria, 14.80%%.

In the etiology of CKD in DM2, in addition to diabetic nephropathy, hypertension, renal vessel sclerosis, and renal vessel disease are common causes. Therefore, up to 35% of patients with DM2 do not have microalbuminuria, and renal disease is not associated with Chronic classic diabetic nephropathy [Go, A.S. *et al*., 2004; Perlman, R. L. *et al*., 2005; Chin, H. J. *et al*., 2008].

A univariate logistic regression model for risk factor analysis was conducted, which identifies advanced age, treated hypertension, and presence of high comorbidities as possible factors for CKD in diabetic patients, and a significant relationship was found at ages 70–80 years with ci-95%5.6 (3.5–10.9) at p-value 0.000, High comorbidity 4.3 (3.1 – 5.5) at p-value 0.002.

When analyzing the dynamics of the prevalence of CKD in the period 2020-2021, several factors must be taken into account; the most important which is a change in the model of diagnosis of complications.

A large of patients with reduced glomerular filtration rate due to normal albuminuria resulted in an increased number of people with this complication according to CKD criteria. [Moher, D. *et al*., 2009; Stroup, D.F. *et al*., 2000]

CONCLUSION

It is essential to provide primary care physicians with more training, as patients with chronic kidney disease are not identified in a timely manner, and thus valuable opportunities to protect the kidneys are lost. Timely detection allows the use of renal protective strategies aimed at delaying or halting the deterioration of CKD but also preventing cardiovascular complications and. In this study was found a direct relationship between diabetic patients with the incidence of chronic renal diseases

RECOMMENDATIONS

The early detection of patients with the initial stages and the widespread introduction of modern renal protection methods into their treatment practice is extremely important.

Assessment of all mortality and hospitalization depending on the presence and absence of CKD.

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