

ORIGINAL RESEARCH

Assessment of cardiovascular risk factors in diabetes patients

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Received: 27 September, 2022

Accepted: 30 October, 2022

ABSTRACT

Background: Diabetes is a major cause of morbidity and mortality worldwide and it contributes substantially to healthcare costs. The present study was conducted to assess cardiovascular risk factors in diabetes patients.

Materials & Methods: 86 type II diabetic patients of both genders. In all the patients, biochemical and hematological profile was obtained. Various cardiovascular risk factors were recorded.

Results: Out of 86 patients, males were 56 and females were 30. Common risk factors in diabetes patients were coronary heart disease in 12, peripheral heart disease in 5, stroke in 4 patients, retinopathy in 2 and nephropathy in 3 patients. The difference was significant ($P < 0.05$).

Conclusion: Common risk factors in diabetes patients were coronary heart disease, peripheral heart disease, stroke, retinopathy and nephropathy.

Key words: coronary heart disease, Diabetes, peripheral artery disease

INTRODUCTION

Diabetes is a major cause of morbidity and mortality worldwide and it contributes substantially to healthcare costs. In 2017 diabetes accounted for 425 million cases and its prevalence will rise to 629 million by 2040. Type 2 Diabetes mellitus (T2DM) is the most common type of diabetes, accounting for approximately 90% of all cases.¹ A global increase of unhealthy lifestyle, the aging of the population and the escalating rates of obesity among adults and children can partially explain the diabetes pandemic. Moreover, as a result of economic development and urbanization, the incidence of diabetes is rapidly increasing in the developing countries.²

A substantial portion of diabetes health burden can be attributed to diabetes related macrovascular and microvascular complications such as coronary heart disease (CHD), stroke, peripheral artery disease (PAD), heart failure (HF), diabetic retinopathy (DR), renal disease and cardiac autonomic neuropathy (CAN).^{3,4} Cardiovascular disease (CVD) represents the main cause of morbidity and mortality in subjects with T2DM in whom it occurs approximately 15 years earlier than in people without diabetes and it is more common in women, who show a mortality rate from CVD higher than men when compared with the counterpart without diabetes (2–5 times vs 1–3 times).⁵ The present study was conducted to assess cardiovascular risk factors in diabetes patients.

MATERIALS & METHODS

The present study comprised of 86 type II diabetic patients of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. In all the patients, biochemical and hematological profile was obtained. Various cardiovascular risk factors were recorded. Results were tabulated and assessed statistically. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 86		
Gender	Male	Female
Number	56	30

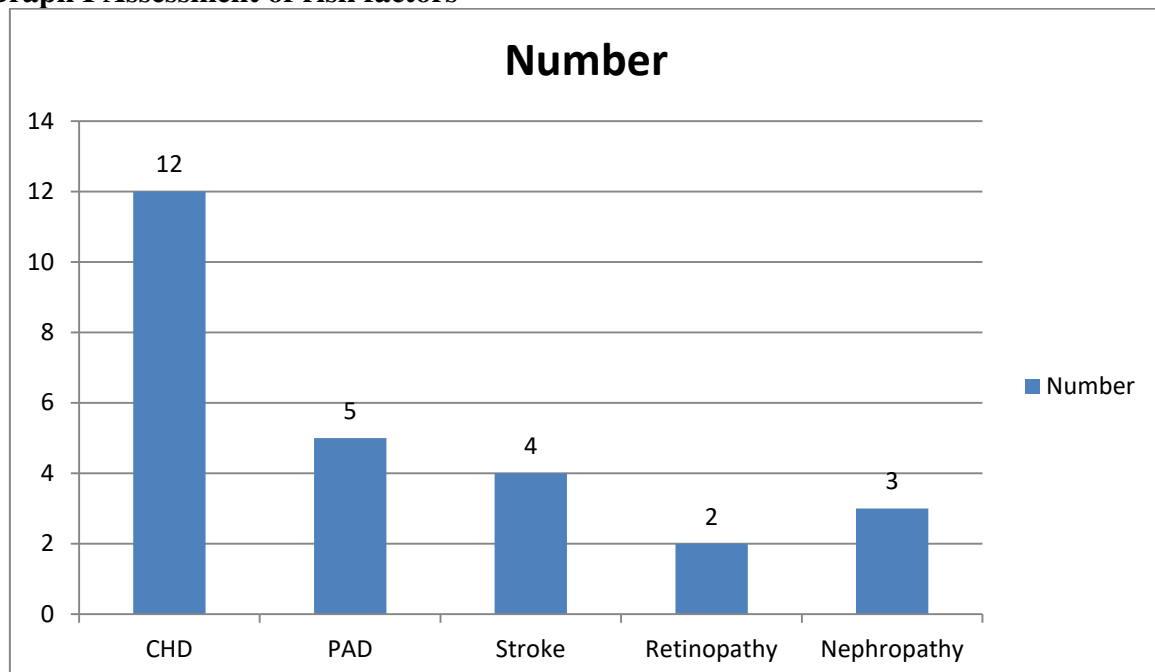
Table I shows that out of 86 patients, males were 56 and females were 30.

Table II Assessment of risk factors

Risk factors	Number	P value
CHD	12	0.17
PAD	5	
Stroke	4	
Retinopathy	2	
Nephropathy	3	

Table II, graph I shows that common risk factors in diabetes patients were coronary heart disease in 12, peripheral heart disease in 5, stroke in 4 patients, retinopathy in 2 and nephropathy in 3 patients. The difference was significant ($P < 0.05$).

Graph I Assessment of risk factors



DISCUSSION

The global prevalence of diabetes is predicted to increase dramatically in the coming decades as the population grows and ages, in parallel with the rising burden of overweight and

obesity, in both developed and developing countries. Cardiovascular disease represents the principal cause of death and morbidity among people with diabetes, especially in those with type 2 diabetes mellitus. Adults with diabetes have 2–4 times increased cardiovascular risk compared with adults without diabetes, and the risk rises with worsening glycaemic control.⁶ Diabetes has been associated with 75% increase in mortality rate in adults, and cardiovascular disease accounts for a large part of the excess mortality. Diabetes related macrovascular and microvascular complications, including coronary heart disease, cerebrovascular disease, heart failure, peripheral vascular disease, chronic renal disease, diabetic retinopathy and cardiovascular autonomic neuropathy are responsible for the impaired quality of life, disability and premature death associated with diabetes. Given the substantial clinical impact of diabetes as a cardiovascular risk factor, there has been a growing focus on diabetes-related complications.⁷ While some population-based studies suggest that the epidemiology of such complications is changing and that rates of all-cause and cardiovascular mortality among individuals with diabetes are decreasing in high-income countries, the economic and social burden of diabetes is expected to rise due to changing demographics and lifestyle especially in middle- and low-income countries.⁸ The major cardiovascular risk factors (CVRFs) are known: diabetes, hypertension, dyslipidemia and smoking are associated with an increased risk of coronary heart disease. Controlling these factors has been shown to help reduce the CVD risk level.⁹ The majority of the epidemiological studies from the region were descriptive and among samples of subjects or volunteers from the general population with little emphasis on the workers in their workplaces.¹⁰ The employees in any community represent the main workforce and their quality of life, health awareness, and adoption of healthy behaviors reflect on the overall productivity, economic growth, and the disease burden.¹¹ The present study was conducted to assess cardiovascular risk factors in diabetes patients.

We found that out of 86 patients, males were 56 and females were 30. Singh et al¹² in their study a total of 200 patients reporting to the department of cardiology for routine medical and health check-up were included. Complete demographic and clinical details of all the patients recorded. Complete medical checkup of all the patients was done. In all the patients, biochemical and hematological profile was obtained. Diabetes, Hypertension, Smoking habit, Obesity and Dyslipidemia were the common CVD risk factors in the present study found to be present in 125%, 19%, 9%, 21% and 28% of the study population respectively. The authors concluded that various cardiovascular disease risk factors are present in significant proportion of population.

We found that common risk factors in diabetes patients were coronary heart disease in 12, peripheral heart disease in 5, stroke in 4 patients, retinopathy in 2 and nephropathy in 3 patients. Díez JMB et al¹³ investigated cardiovascular diseases such as ischemic heart disease, cerebrovascular disease and peripheral arterial disease, and cardiovascular risk factors such as age, sex, smoking, high blood pressure, hypercholesterolemia, hypertriglyceridemia, and diabetes mellitus. The patients' mean age was 49.1 years and 53.5% were male. Cardiovascular risk factor prevalence's were: smoking, 35.2%; high blood pressure, 33.7%; hypercholesterolemia, 21.9%; hypertriglyceridemia, 12.7%; and diabetes mellitus, 15.8%. Overall, 57.9% of patients had at least 1 cardiovascular risk factor. Significantly more males presented with each risk factors.

In a recent systematic review of 4,549,481 individuals with T2DM, with an overall prevalence of macrovascular complications of 32.2%, CHD was the most frequently reported form of CVD (21.2%).¹⁰ After sudden cardiac death, which represents the largest subcategory of cardiovascular death in subjects with T2DM and established ASCVD (27% of cardiovascular deaths), acute myocardial infarction (MI), along with stroke, represents the second most lethal complication (21%).¹⁴

The shortcoming of the study was small sample size.

CONCLUSION

Authors found that common risk factors in diabetes patients were coronary heart disease, peripheral heart disease, stroke, retinopathy and nephropathy.

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