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Cardiovascular Profile of Diabetic Patients Hospitalized at the CHU of Conakry

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Abstract

Introduction: Diabetes is the cause of an increased incidence of cardiovascular disease with its manifestations of coronary artery disease, heart failure, peripheral arterial disease and stroke.

Material and Method: It was a prospective study, of descriptive type, lasting six (6) months from August 1, 2022 to January 31, 2023. We targeted all diabetic patients who were hospitalized in the services during the study period.

Results: We recorded 80 cases of cardiovascular diseases out of 109 hospitalized diabetic patients, a frequency of 73.4%. It appears from our study that the age group 55-64 years was the most represented with 62.5%. The average age was 59.10 9.97 years with extremes 35 and 83 years. Indeed, 58.8% of diabetic patients were female compared to 41.3% male with a sex-ratio H/F of 0.70. Type 2 diabetes was found in 96.3% of our patients compared to 3.7% of type 1. The duration of diabetes progression was less than 5 years in 40% of cases and more than 10 years in 31%. In addition to age, almost half of our patients had as cardiovascular risk factors sedentary lifestyle, obesity and high blood pressure with respective frequencies of 48.7%, 43.7% and 37.5%. Dyspnea, intermittent claudication and chest pain were the main symptoms with 42.5%, 40% and 20% respectively. The physical signs were dominated by crackles and edema of the lower limbs with frequencies of 31.3% and 27.5%, respectively. Cardiovascular conditions were dominated by PAD and ischemic heart disease, respectively 43.75% and 17.5%.

Conclusion: We reported a non-negligible frequency of cardiovascular conditions during diabetes. Cardiovascular conditions were mainly PAD, hypertension and ischemic heart diseases.

Keywords: Cardiovascular Profile; Diabetes; Cardiology; Endocrinology.

Introduction

Diabetes is the cause of an increased incidence of cardiovascular disease with its manifestations of coronary artery disease, heart failure, peripheral arterial disease and stroke. In addition, diabetes is a major risk factor for developing chronic kidney disease, which is itself associated with the development of cardiovascular disease. The prevention of these complications requires the management of all risk factors such as dyslipidemia, hypertension and tobacco.

The combination of diabetes and these cardio-renal comorbidities increases the risk not only of cardiovascular (CV) events, but also of cardiovascular mortality and all causes combined. According to the WHO, 16.7 million deaths worldwide are due to cardiovascular diseases, with an estimated frequency of 29.2%. Among these annual deaths, 7.3 million are due to myocardial infarction (MI) (43.7%), 5.5 million to a stroke (32.9%), 3.9 million to arterial hypertension (HTA) (23.4%) and other CVD such as pulmonary embolism (PE) [1].

In France, Dib et al, in 2022, reported in their study on the cardiovascular profile of patients with type 2 diabetes, a prevalence of 78.2% of arterial hypertension and 63.7% of hyperlipidemia. This same study reported that 12.4% of the total study population had a history of established CVD and the majority of these patients, had already had one or two cardiovascular diseases [2].

In Morocco, Joubij M. and alen 2010 had reported in a study on the cardiovascular profile of diabetics at the day hospital of the University Hospital of Casablanca that all their patients had a vascular risk factor associated with diabetes: hypertension with a frequency of 81%. The macroangiopathic complications found in their study were coronary ischemia, arteritis of the lower limbs, and cerebrovascular accident with respective frequencies of 23.5%, 25.1% and 11.9% [3] . Thus diabetes mellitus, especially type 2, associated or not with other cardiovascular risk factors, in addition to the risk of a cardiovascular event through macroangiopathy and microangiopathy.

The objective of this work was to determine the proportion and nature of cardiovascular diseases in diabetics.

Patients and Methods

This work was done in two different departments, one in the Endocrinology department at the CHU of Donka and the other in the Cardiology department of the Ignace Deen national hospital. Our study population consisted of all diabetic patients received in both (2) departments during the study period. It was a prospective study, of the descriptive type, lasting six (6) months from August 1, 2022 to January 31, 2023. The Inclusion Criterion was all known or newly diagnosed type I or type II diabetic patients hospitalized at study sites, with cardiovascular disease and who agreed to participate in the study. Our study variables were quantitative and qualitative divided into epidemiological, clinical, and paraclinical data. Cardiovascular involvement was, among other things, lower limb arterial disease (PAD) suspected in the presence of intermittent claudication, trophic disorders and confirm by Doppler ultrasound showing stenotic or non-stenotic atheroma plaques on the arteries of the lower limbs.

Ischemic cardiopathy was retained in front of precordialgia, dyspnea, palpitation, edema of the lower limbs. The signs on the ECG: QS aspect and Q waves. The ultrasound signs were: cardiac kinetic disorders sometimes associated with impaired systolic function of the left ventricle.

Cerebrovascular accident (CVA): it is a focal neurological deficit manifested by weakness of a hemicorps, paresis or plegia. The scannographic signs are hyperdensity indicating a hemorrhagic stroke or hypodensity indicating an ischemic stroke.

Dilated cardiomyopathy was retained in the presence of clinical signs such as dyspnea, ankle edema, cough, and pulmonary crackles. Cardiac ultrasound reveals an enlargement of all the heart chambers with hypokinesia of the ventricles and impairment of systolic function of the left ventricle.

The pulmonary embolism was retained before the basithoracic pain, dyspnea, desaturation of electrical signs and echocardiograms, confirm with the thoracic angioscanner.

Hypertensive cardiopathy was defined by the exis-

tence of a history of arterial hypertension and the presence of left ventricular hypertrophy associated or not with signs of heart failure. Our data was entered and presented using the Word, Excel, Powerpoint software of the Office 2013 package. The analysis was done using SPSS data analysis software, and presented in table form, and text; discussed and compared to current data from the literature. For ethical reasons, we considered the anonymity of patients diagnosed with diabetes during the investigation. And the informed consent of patients had been obtained before being included in our study.

Results

This multicenter work conducted in the endocrinology department of the Donka University Hospital and in the cardiology department of the Ignace DEEN National Hospital allowed us to collect 109 diabetic patients among whom 80 patients already had a cardiovascular complication, a proportion of 73.4%.

Table 1: characteristic of the diabetic population studied

Patients included	**N =80**		**100%**
Average age (years)	**59,10 ± 9,97**		
Gender	Masculine	33	41.2 %
	Feminine	47	58.8 %
Type of diabetes	Type 1	3	3.7 %
	Type 2	77	96.3 %
Mode of discovery	Accidental	38	47.8 %
	Syndrome polyuro-polydipie	30	37.5 %
	Repeated infection	10	12.5 %
	Wound	2	2.5 %
Age of diabetes		32	40%
		23	28.8 %
		25	31.2 %

Table 2: Distribution of cardiovascular risk factors associated with diabetes

Risk factors	**Staff**	**Percentage**
Age	60	75
Smoking	11	13.8
Hypercholesterolemia	28	35
HTA	30	37.5
Sedentariness	39	48.7
Overweight	26	32.5
Obesity	35	43.7

Table 3: Distribution by cardiovascular signs and symptoms

Signs and symptoms	Settings	Staff	Percentage
Cardiovascular functional signs	Dyspnea	34	42.5 %
	Intermittent claudication	32	0.4
	Chest pain	16	0.2
	Palpitations	14	17.5 %
	Cough	7	8.8 %
	Syncope	1	1.3 %
Cardiovascular physical signs	Rales crackles	25	31.3 %
	Edema of the lower limbs	22	27.5 %
	Turgescence of the jugular veins	13	16.3
	Hepatomegaly	10	12.5 %
	Ascite	9	11.3 %
	Abolition of peripheral pulses	15	18.8 %

Table 4: Distribution of patients by cardiovascular conditions

Type of cardiovascular conditions	Staff (80)	Percentage
AOMI	35	43.75
Ischemic Heart Disease	14	17.5
Ischemic stroke	11	13.75
Hypertensive Heart Disease	8	10
CMD	8	10
Pulmonary Embolism	5	6.3

Discussion

We conducted a prospective descriptive study concerning diabetic patients hospitalized in the cardiology department of the Ignace Deen National Hospital and endocrinology department of the Donka National Hospital for a duration of six (6) months from August 1, 2022 to January 31, 2023. Our work aimed to describe the cardiovascular profile of diabetes patients. The patient selection was based on a rigorous and exhaustive methodology with a standardized collection of clinical and complementary data.

Thus, in our study, we recorded 80 diabetic patients including 23 in the Ignace Deen cardiology department and 57 in the Donka endocrinology department.

We recorded 80 cases of cardiovascular conditions among the 109 hospitalized diabetic patients, a frequency of 73.4%. This frequency found in our study could be explained by the high prevalence of type 2 diabetes in our study population.

It appears from our study that the age group 55-64 years was the most represented, with 42.5%. The average age was 59.10 9.97 years with extremes 35 and 83 years. Essafi. MA et al. [4] in Fès, Morocco, in 2022 reported in their study on metabolic syndrome in patients with diabetes mellitus that the age group 50-59 years was the most represent-

ed, with a frequency of 31.20% with an average age of 52.06 17.33 years. Raharinavalona. SA et al. [5 35-88 years old was the most represented with a average age of 58.5811.10 years. Our result would be explained by the fact that diabetes and cardiovascular diseases are groups of conditions whose incidence increases with age.

Indeed, 58.8% of diabetic patients were female compared to 41.3% male with a sex-H/F ratio of 0.70.

Raharinavalona. SA et al. [5]in Antananarivo in 2020 had reported in their study that 53.88% of their study population were female compared to 46.12% male. Diallo. A-M et al. [6] in Guinea in 2012 had reported in their study that 31% of patients were male while 69% were female with a sex ratio (M/F) 0.45. On the other hand, some authors report a higher prevalence of diabetes in men than in women. [7].

Type 2 diabetes was found in 96.3% of our patients compared to 3.7% of type 1. This result goes in the same direction as Essafi. MA et al. [35] who had found 78.7% of cases of type 2 diabetes compared to 21.3% of type 1 diabetes. This result is normal because this type is the most common form of diabetes in the world, with a prevalence of 90 to 95% [8].

The duration of diabetes was less than 5 years in 40% of cases and more than 10 years in 31%. Our results are similar to those of Konaté N. et al. [9] in their study on the electrocardiogram of the type 2 diabetic subject who had found for the duration of evolution of less than 5 years, a frequency of 40.7% and 35% for the duration of evolution greater than 10 years.

In addition to age, almost half of our patients had as cardiovascular risk factors sedentary lifestyle, obesity and high blood pressure with respective frequencies of 48.7%, 43.7% and 37.5%.

Dyspnea, intermittent claudication and chest pain were the main symptoms with 42.5%, 40% and 20% respectively. The physical signs were dominated by crackles and edema of the lower limbs with frequencies of 31.3% and 27.5%, respectively.

Cardiovascular conditions were dominated by PAD and ischemic heart disease, respectively 43.75% and 17.5%. These results corroborate with those of Joubij M. et al., who reported a frequency of 25.1% of PAD within their study population [2].

Conclusion

This study allowed us to observe a high frequency of cardiovascular conditions in the diabetic population. It allowed us to highlight cardiovascular conditions, mainly PAD and ischemic heart diseases.

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