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Erectile Dysfunction among Diabetic Men in Two Medical Centers in Burkina Faso: Epidemiological, Diagnosis and Therapeutic Aspects

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ABSTRACT

Objective: To study erectile dysfunction in diabetic patients seen in two clinics in the city of Bobo-Dioulasso, Burkina Faso. Materials and Methods: A prospective cross-sectional descriptive study was conducted at the Sourô Sanou Teaching Hospital (CHUSS) and the Saint Leopold clinic in Bobo-Dioulasso, from March 1 to September 1, 2012. A total of 107 patients data were collated and analysed, which was then grouped into two: the ED group, designating patients with erectile dysfunction and the NED group consisting of those patients without. The sample comprised of 61 patients with types 1 and 2 diabetesand were aged between 25 - 70 years. The IIEF-5 was used to evaluate erectile dysfunction. Results: The prevalence of erectile dysfunction was 57%. The average age of patients was 54.4 ± 8.3 years. All patients with ED had type 2 diabetes. The mean disease duration of diabetes was 7.2 ± 6 years. Erectile dysfunction was severe in 32.8% of cases, moderate in 31.1% of cases and mild in 36.1%. Its severity was significantly associated with glycated hemoglobin, triglycerides and BMI. Phosphodiesterase types 5 (PDE5) inhibitors were found to be effective in the treatment of erectile dysfunction with a satisfactory therapeutic response in 77.4% of users. Conclusion: Erectile dysfunction is a common complication in diabetic patients. Its occurrence and severity are influenced by several factors. The potential presence of this disorder should be assessed due to its negative impact on quality of life. Phosphodiesterase type 5 inhibitors are an effective treatment modality in diabetic patients.

KEYWORDS

Erectile Dysfunction; Diabetes; Phosphodiesterase Type 5 Inhibitors; Bobo-Dioulasso

1. Introduction

Diabetes is a serious public health problem, which according to the International Diabetes Federation, occurs in 2% - 3% of the adult population in Burkina Faso [1]. Microangiopathy is one of its many chronic complications, and can lead to erectile dysfunction. The prevalence of erectile dysfunction among patients with diabetes indiabetics is approximately 16% to 95.5% worldwide [2,3]. Despite the efficacy and availability of phospho-diesterase type 5 inhibitors and intracavernous injections in the treatment of erectile dysfunction in diabetic patients [4], it is still at a boo subject in frequently broached by patients.

With the growing number of diabetic patients in Burkina Faso, it is becoming increasingly relevant to study this population. Better quantifying the epidemiology, diagnostic modalities and therapeutic options will contribute to a better understanding of this phenomenon and how to improve its management.

2. Patients and Methods

We undertook descriptive study of patients seen in the Departmentof Internal Medicine at the SourôSanou

Teaching Hospital (CHUSS) and the Saint Leopold clinic in the city of Bobo Dioulasso, for a period of six (06) months going from March 1, 2012 to September 1, 2012. We recruited 107 patients and divided into two groups: the ED, group, comprised of patients who had erectile dysfunction, and the NED group, made up of patients who did not. A total of 61 men between the ages of 25 to 70 with type 1 and 2 diabetes inwhomthe diagnosis of erectile dysfunction (ED) was made following consultation.

The variables studied were age, marital status, diabetic history, medical history, characteristics of ED, other sexual disorders found on additional assessments, treatments attempted and efficacy of attempted treatments. The short form of the International Index of Erectile Function (IIEF-5) [5] was used to assess erectile function. It includes five major parts, each with five questions listed 1 to 5, and designed to explore quality of sex, sexual desire and overall satisfaction with sex. For interpretation, as core scale is established with the following corresponding values: severe erection disorder (score of 5 to 10), moderate (11 - 15), mild (16 - 20), or normal erectile function (21 - 25).

ED treatment modalities employed included sildenafil 50 - 100 mg daily, tadalafil 10 - 20 mg once daily or yohimbine 15 mg daily. Chi-squaretest was used for categorical variables and analysis of variancetest (ANOVA) for quantitative variables. The significance levelwas set at $p < 0.05$. Informed consent was obtained from each man before the start of this study, as well as the approval of the local ethics committee authorizing this work.

The Chi-square test was used for categorical variables. Statistical significance was set at $p < 0.05$.

3. Results

Of the 107 diabetic patients seen, 61 (57%) reported erectile dysfunction (ED). The average age of patients was 54.4 ± 8.3 years, ranging from 34 years to 70 years. In our study, 102 (95.3%) patients were married with 59 (57.8%) having erectile dysfunction, and 43 (42.2%) not presented ($P = 0.4$). Among the married patients with ED, 35 (59.3%) were monogamous and 24 (40.7%) polygamous, while in the NED group, 31 (72.1%) were monogamous and 12 (27.9%) polygamous ($p = 0.3$). All patients with ED had type 2 diabetes. The mean duration of diabetes was 7.27 ± 6.01 years, ranging from 3 weeks to 26 years. All patients were on dietary control; sulphonylureas were used by 37.6% (23) of patients, biguanides by 60.7% (37) of patients and18 patients (29.5%) were on insulin. Other risk factors for ED are found in **Table 1**.

The mean duration of hypertension was 7.7 ± 7.1 years (range 2 months to 30 years). Diabetes was uncontrolled

Table 1. Prevalence of other risk factors for erectile dysfunction within the study population.

		ED		NED		P value
Riskfactors		N	%	N	%	
Hypertension	yes	**31**	**50.8**	**9**	**19.6**	**0.0009**
	no	30	49.2	37	80.4	
Obesity by BMI	yes	4	6.6	2	4.3	0.8
	no	57	93.4	44	95.6	
Tobacco	yes	14	23	8	17.3	0.6
	no	47	77	38	82.6	
Alcohol	yes	14	23	11	23.9	0.9
	no	47	77	35	76.1	
Dyslipidemia	yes	20	32.8	27	58.7	**0.007**
	no	41	67.2	19	41.3	

in 43 (70.5%) patients and hypercholesterolemia was observed in 13 (21.3%) patients. Hypertrigly ceridemia was found in 8 patients (13.1%) and abnormal electrocar diogram in 28 (51.8%) patients.

It should be noted that only 16 (26.2%) patients had already talked about erectile dysfunction with their doctors. The average duration of erectile dysfunction was 3.5 years, ranging from 3 months to 35 years. Onset of ED was gradual in 58 patients (95.1%) and sudden in 3 patients (4.9%). One (1.6%) patient reported primary ED while 60 patients (98.4%) reported secondary ED. Furthermore, 10 patients (16.4 %) reported difficulty initiating an erection and 51 (83.6%) reported difficulty maintaining an erection. Erectile dysfunction was variable in 8 patients (13.1%). Among them, five experienced variability based on different partners and three experienced variability due to time period. Indeed, these patients felt their erections improved with either a different partner or during a different time period. Spontaneous erections (nocturnal and/or diurnal) were maintained in 23 patients (37.7%) and absent in 38 patients (62.3%). Erectile dysfunction was severe in 32.8% of cases, moderate in 31.1% of cases and mild in 36.1%. The association between certain patient characteristics and the severity of their erectile dysfunction is shown in **Table 2**.

The glycated hemoglobin, body mass index and triglyceride levels increased significantly with the severity of erectile dysfunction.

Regarding the impact of ED on quality of life, only 7 (11.5%) patients reported living without problem with their erectile dysfunction, 22 (36.1%) patients found it to be difficult and 32 (52.4%) patients found it to be un-

Table 2. Distribution of ED severity by patient characteristic.

Characteristic	Mild (n = 22)	Moderate (n = 19)	Severe (n = 20)	p
Age (years)	54.8 ± 8.5	52.8 ± 9.1	55.6 ± 7.5	0.5
Duration of diabetes(years)	8.2 ± 6.8	7.7 ± 6.1	6.1 ± 5.3	0.5
BMI (kg/m²)	25.5 ± 3.6	24.2 ± 4.6	22.6 ± 3.4	**0.05**
HbA1C (%)	8.28 ± 3.7	9.9 ± 4.2	8.6 ± 2	**0.01**
Total Cholesterol (mmol/l)	4.5 ± 1.9	4 ± 1	4.2 ± 1.1	0.5
Triglycerides (mmol/l)	1.4 ± 1.3	1.1 ± 0.5	1.1 ± 0.5	**0.00001**
Tobaccouse n (%)	3 (4.9%)	1 (1.6%)	1 (1.6%)	-
Alcoholuse n (%)	6 (9.8%)	7 (11.5%)	1 (1.6%)	-
Dyslipidemia n (%)	11 (18%)	5 (8.2%)	4 (6.5%)	-
Hypertension n (%)	13 (21.3%)	10 (16.4%)	8 (13.1%)	0.4

n = number of cases.

bearable.

Other disorders associated with ED were mainly decreased or absent libido in 5 patients (8.2%), premature ejaculation in 14 patients (22.9%), delayed ejaculation in 10 patients (16, 4%) and an ejaculation in 5 cases (8.2%). Two patients (3.3%) experienced penile pain during sexual intercourse. There was a performance anxiety in 56 patients (91.8%), and 6 (9.8%) patients reported difficulty with sleep.

In our series, 43 (70.5%) patients received medical treatment. The remaining 18 (29.5%) patients did not receive treatment either due to lack of funds or medical contraindications. Of the 31 patients who used the PDE-5 inhibitors, 24 (77.4%) patients experienced good therapeutic response, 6 (19.3%) reported low response and one (3.2%) found no change in symptoms. Twelve patients use dyohimbine, with 6 (50%) reporting good response and 6 (50%) reporting low response (**Table 3**).

In general, the average duration of treatment of erectile dysfunction was 19 ± 9.8 days with a range of1 and3 months for all agents used. Tolerance was good in 33 patients (76.7%). However, 10 patients (23.6%) experience dmultiple side effects with the use of phosphodiesterase type 5 inhibitors.

4. Discussion

The prevalence of erectile dysfunction in our study population was 57%. In other studies found in the literature, the prevalence of erectile dysfunction in diabetic patients have reported ranging from 16% to 95.5% [2,3,6,7]. The prevalence found in our study was similar to that reported by Costa *et al*. [8] in France who found a rate of 60%. This is in contrast to Gueye *et al*. [9] in Senegal and Lokrou *et al*. [10] in the Ivory Coast who found a prevalence of 16% and 36.64% respectively. These results indicate the difficulty of evaluating ED (due to the use of different ED assessment tools), but may also be due to the small sample size of our study.

Table 3. Comparison of the efficacy of drugs on the IIEF5 erectile function score before and after treatment.

Drugs	IIEF-5 before treatment	IIEF-5 after treatment
Sildenafil	12.8 ± 4.1	**22.3 ± 4**
Tadalafil	12.4 ± 6.4	**18.6 ± 8.6**
Yohimbine	13.8 ± 4.5	**19.7 ± 3.9**

There was no association between marital status and the occurrence of erectile dysfunction (p = 0.4). The number of wives was not significantly associated with the occurrence of ED in our study (p = 0.3). Our results are different from those found by Gueye *et al*. [9] in Senegal, where 46.9% of patients were polygamous and 47.3% of men were monogamous. This difference could be due to the fact that Senegal is a predominantly Muslim country where polygamy is “encouraged”.

All patients with ED had type 2 diabetes. The prevalence of type 2 diabetes can be explained by the “explosion” of this scourge worldwide [7,8,11-13], which, in Burkina Faso, can be partially explained by the increasing life expectancy among diabetics. Hypertension was found in more than half of our patients. This situation is explained by the fact that erectile dysfunction and hypertension share common etiologies such as endothelial dysfunction and atherosclerosis [14].

Throughout our study, obesity by BMI did not influence the occurrence of erectile dysfunction as has been described in other studies [12,15,16]. However, the number of obese patients in our series was potentially too low to determine any meaningful conclusions.

The influence of smoking in the occurrence of erectile dysfunction is controversial in the literature [16-19]. Our series and several other studies have not found a significant association between smoking and erectile dysfunction [4,19]. In contrast to other work, Fedele [7] in Italy, El-Achhab [15] in Morocco and Court *et al*. [20] in France have established an association between tobacco poisoning and occurrence of erectile dysfunction. Smoking potentiates the effects of chronic conditions favoring the development of endothelial dysfunction.

Alcohol consumption was not associated with the occurrence of erectile dysfunction in our study (p = 0.9) consistent with findings by Hsu *et al*. [13] in China, El-Achhab [15] in Morocco and Moulik *et al*. [21] in England.

The total cholesterol was significantly associated with the occurrence of erectile dysfunction in our study (p =

0.02), as found in the work of Fedele *et al*. [7] in Italy. This association may be due to the occurrence of endothelial dysfunction in hyperlipidemia.

Sexuality still remains a taboo subject in our society and explainsour patients' silence (73.8% of patients). Our results confirm the French study by Costa *et al*. [8] which found that 98% of patients think that health care professsionals should regularly ask the patient about his sexuality and sexual function. Other associated disorders such as decreased libido, premature or delayed ejaculation and an ejaculation reflect the fact that the onset of erectile dysfunction in diabetics is primarily organic, but with a significant psychological component, as reported by several authors in the literature [9,22].

The severity of ED was variously appreciated by patients and can be explained by the fact that some patients experience discomfort, or are reluctant to report certain items or check the IIEF-5 score. In our study, even though patient age was a variable associated with the onset of ED, there was no association between age and the severity of erectile dysfunction ($p = 0.5$). Diao [16], in Senegal, found that the severity of ED increases significantly with age. We noted no significant association between duration of diabetes and severity of erectile dysfunction in our study ($p = 0.5$). Our results are different from those of Siu [13] in China who reported that the time course of diabetes influenced the severity of ED. This difference could be justified by the fact that the average age of our patients was lower than the one of this author's patients.

If our patients were to suffer from this disorder for the rest of their lives, nearly three-quarters of our patients would consider this to cause variable degrees of pain and suffering. Numerous studies in non-diabetic patients across the world have shown that erectile dysfunction has a negative impact onpatients' relationships with their partners [8,9,23,24].

The efficacy of the class of phosphodiesterase type 5 inhibitors in our series is consistent with that reported by Court *et al*. [20] in France, who found a success rate of 60% to 85%. These high levels of satisfaction support the efficacy of these drugs against ED in diabetic patients. In the literature, yohimbine has been shown only to be effective in psychogenic dysfunction and is often tried as a second line drug [4]. In our study, yohimbine was offered to patients who had contraindications to PPDE-5 inhibitors, or those who could not afford the PPDE-5 inhibitors. The small number of patients using yohimbine in our series does not allow us to draw any statistically significant conclusions regarding its efficacy.

5. Conclusion

Erectile dysfunction is commonly found among patients with diabetes, especially among those with the type 2 designation. Its occurrence is influenced by hypertension and dyslipidemia. Phosphodiesterase type 5 inhibitors have been proven to be an effective treatment. To better implement this treatment, the need for collaboration between urologists and rologists, cardiologists, gynencologists, internists and sexologists, is crucial. A further prospective study should be conducted to assess the social impact of erectile dysfunction in diabetic patients in our context.

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