

SEXUAL DISTURBANCES IN MALE DIABETICS: PHENOMENOLOGICAL AND CLINICAL ASPECTS

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SUMMARY

Sixty four consecutive male diabetics and fifty age matched controls were interrogated so as to assess their sexual functioning. Diabetics were further studied for autonomic/peripheral neuropathy, vasculopathy, retinopathy and nephropathy.

Nearly three fourths (47 cases or 73.4%) of diabetics had sexual disturbances as against just 14 per cent of controls. Impotence of varying degrees was seen in 46 diabetics, three of them having premature ejaculation in addition. Only one case had premature ejaculation as the sole disturbance. The impotence was complete in two thirds of the cases and partial in the remaining one third. The disturbance in diabetics was insidious in onset and progressive in course with marked decline in frequency of sexual outlets and sexual desire. It appeared to be organic in nature in most of the cases.

Introduction

Von Noorden (1903) and Naunyn (1906) were perhaps the earliest to recognize and comment upon the frequency of impaired sexual functions in diabetic males. Subsequently, these observations were confirmed by several workers who found such abnormalities in around fifty per cent of male diabetics, the frequency being more than 5 times higher than that met with in the general population (Rundles 1945; Rubin and Babbott 1958; Schoffling et al. 1963; Ellenberg 1971; Kolodng et al. 1974; Herman et al. 1978 and Krosnick and Podolsky. 1981).

However, there have been few planned and systematic studies of the problem, the literature being largely impressionistic. Most of the available reports are beset with methodological tangles, rendering valid conclusions well nigh impossible. Authors have often used the terms-libido, potency and fertility imprecisely, vaguely and interchangeably. They have adopted varying

case selection and diagnostic criteria, e.g., studying a small number of cases thoroughly (Lester et al. 1980 and Fairburn et al. 1982), or large number of cases rather superficially (Ellenberg 1971; Campbell and McCulloch, 1979 and Alam et al. 1981), or only diabetics with impotence (Fairburn et al. 1982), or only those with vasculopathy or some other complications (Herman et al. 1978). The results, quite understandably, vary widely, ranging from 10 per cent (Gahlaut and Sharma, 1982) to 84 per cent (Khandelwal et al. 1981). Further, most of the studies have been uncontrolled, making it difficult to evaluate their results in statistical terms (Lester et al. 1980).

In view of the theoretical as well as clinical importance of the problem and the prevailing controversies regarding its various aspects in the current literature, a controlled study was undertaken with aims, (1) to find out the frequency and pattern of sexual disturbances in a group of male

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diabetics as against those in a group of age-matched controls, and (2) to relate such disturbances with various aspects of the disease. The present communication addresses itself to the first of these two aims.

Material and Methods

Sixty four consecutive males with unequivocal evidence of diabetes mellitus, diagnosed according to the criteria of National Data Group of American Diabetic Association (1979), attending the 'Diabetic Clinic' of M.L.B. Medical College, Jhansi, over a period of one year, constituted the study group. Fifty age-matched males consisting of hospital personnel, medical students and patients' attendants were studied to serve as controls. All these cases were interviewed in an atmosphere of privacy after gaining their confidence. Medical, family and personal history were obtained with emphasis on medications, alcohol intake, operations, injuries and neurological diseases. A detailed account of the family was recorded, particularly regarding the duration of married life, number of children and the last child birth. The patients were grouped into: under-, normal-, and over-weight, according to the criteria of the Life Insurance Corporation of India (Smith Kline and French 1968), taking height and weight as parameters. Diabetic status was assessed with reference to age of onset; duration; type of disease, i.e. types I and II (Cudworth 1978); severity of the disease viz., mild, moderate and severe, on the basis of fasting blood sugar levels (Viswanath et al. 1976); treatment history and degree of control of the disease.

Sexual history aimed at seeking information regarding the onset of the dysfunction, if any, and its progression, interval between onset of diabetes and that of sexual dysfunction, current level of sexual

functioning, sexual desire (libido), fantasies and dreams of sexual nature, orgasms, ejaculations (premature, absent or retrograde), morning erections, nocturnal emissions, masturbations, frequency of sexual outlets and the patient's attitude towards the absence or decline in sexual performance, if any. Whenever possible, the wife was also interviewed. Based on all these informations, an over all assessment of the patient's sexual functioning was made (Shukla et al. 1979).

Impotence was operationally defined as inability to obtain or maintain an erection of sufficient firmness to permit coitus to be initiated or completed (Masters and Johnson 1970). The condition wherein orgasm and ejaculation persistently occurred before or immediately after penetration was termed *premature ejaculation* (Kolodny et al. 1979). An inability to ejaculate and experience orgasm despite full erection was to be regarded as *retarded ejaculation* or *ejaculatory failure* (Friedman 1973 and Taylor 1975) while orgasm without ejaculation was labelled *retrograde ejaculation* (Andaloro and Dube 1975).

After recording the medical and sexual details, the patients were questioned about the presence of symptoms presumed to be related to autonomic neuropathy viz., postural giddiness, nocturnal diarrhoea, disturbances of urinary sphincter, constipation and sweating disturbances. They were then subjected to a thorough physical examination with special reference to peripheral neuropathy which was considered to be present if the patient complained of pain and paraesthesias and had glove and stocking type of impairment of sensations with loss of ankle jerks. The patients were assessed for autonomic neuropathy by measuring orthostatic changes in pulse rate (Ewing et al. 1978,

1981) and blood pressure (Schatz et al. 1963), blood pressure response to nitroglycerine (Nies 1972), heart rate response to valsalva manoeuvre (Elisberg 1963 and Nies 1972) and residual urine (Ellenberg 1971).

History was recorded and relevant investigations carried out for detecting vasculopathy, retinopathy and nephropathy viz., history of cerebral ischaemia, intermittent claudications, myocardial ischaemia, trophic ulcers, anasarca and peripheral pulsations, fundus examination, urine albumin, blood urea, E.C.G. and other investigations as and when indicated.

The patients of the study group were given treatment for diabetes. They were followed up regarding the control of diabetes and its relation with sexual functioning. In the end the findings were tabulated and the data analysed statistically.

Results

The study and control groups were similar in age and such socio-demographic variables as marital status, education, occupation and social class. However, as can be seen from Table 1, diabetics were significantly different from controls in their weight ($P < 0.001$). Nearly two thirds

Table 1
Distribution of cases by body weight*

Weight	Diabetics (n=64)		Controls (n=50)	
	No.	%	No.	%
Under weight	40	62.5	13	26.0
Normal weight	8	12.5	31	62.0
Over weight	16	25.0	6	12.0

$$\chi^2 = 30.7; \text{ d.f.} = 2; P < 0.001$$

* Based on the standards of Life Insurance Corporation of India (Smith Kline and French 1968).

(62.0%) of the controls were of normal weight compared to just one eighth (12.5%) of the diabetic group. Nearly two thirds (62.5%) of diabetics were under-weight as against just one fourth (26.0%) of controls. Similarly, over-weight was more common among diabetics (25.0%) than among the controls (12.0%).

The two groups differed significantly in their sexual functioning ($P < 0.001$) (Table 2). Nearly three fourths of diabetics had sexual disturbances as against just 14.0 per cent of the controls. All but one of the diabetics with sexual disturbances had impotence of varying degrees. Three of them had premature ejaculation in addition to impotence. One case had premature ejaculation as the sexual impairment. Out of 50 controls, just 5 (10.0%) and 2 (4.0%) respectively, had impotence and premature ejaculation. Of the impotent cases, in both the groups, the dysfunction was complete in two thirds and partial in the remaining one third. There was no case with retrograde ejaculation in either of the groups. As there was just a single case with pure premature ejaculation, impotence could be practically taken as the main sexual

Table 2
Sexual functions in diabetics and controls

Sexual functions	Diabetics (n=64)		Controls (n=50)	
	No.	%	No.	%
Normal	17	26.6	43	86.0
Impotence	46	71.9	5	10.0
- Complete (31)			(3)	
- Partial (15)			(2)	
Premature ejaculation	4	6.3	2	4.0
Total	67*	104.8*	50	100.0

$$\chi^2 = 43.47; \text{ d.f.} = 1; P < 0.001$$

* Three cases had both impotence (partial) and premature ejaculation.

disturbance seen in the diabetics. The description henceforth, unless specified otherwise, would therefore pertain to this abnormality. Various features of this dysfunction will be presented in some details:

Onset

The onset of sexual disturbance was insidious in 45 (95.7%) of 47 affected cases in the study group. In the remaining 2 (4.3%) it was acute. As against this, in the control group the onset was acute in 71.4% of the cases. This difference was highly significant ($P < 0.001$).

Course

The course of decline in sexual functions was progressive in 91.5% of diabetics while 71.4% of the controls had a stationary course. Only one diabetic patient reported some improvement in sexual functions during the hospital stay (Table 3). This difference in the course of impotence in the two groups was highly significant ($P < 0.001$).

Table 3
Features of sexual dysfunction in 47 affected diabetics

Features	No.	%
Onset*		
Acute	2	4.3
Insidious	45	95.7
Course*		
Progressive	43	91.5
Stationary	3	6.4
Regressive	1	2.1
Nature**		
Functional#	2	4.3
Organic	45	95.7
Relation with onset of diabetes		
Antedated	4	6.5
Coincided	20	42.6
Followed	23	48.9

* In control group only 2 cases out of 7 (28.0%) had insidious onset and progressive course.

** Based on overall clinical impression.

In the control group it was functional in 5 (71.0%) and organic in 2 (28.6%).

Frequency of sexual outlets

Mean frequency of sexual outlets per month was less (3.4 ± 2.9) in the study group than that in the control group (6.6 ± 4.9). No outlets were reported by 37 (57.8%) diabetics and 4 (8.0%) controls having sexual dysfunction, the difference being highly significant ($P < 0.001$) (Table 4).

Table 4
Frequency of sexual outlets in study and control groups

Frequency (Outlets per month)	Diabetics (n=64)		Controls (n=50)	
	No.	%	No.	%
Nil	37	57.8	4	8.0
1-4	17	26.6	18	36.0
5-8	3	4.7	11	22.0
9-12	5	7.8	5	10.0
> 12	2	3.1	12	24.0
Mean \pm S.D.	3.2 ± 2.9		6.6 ± 4.9	
	$T = 4.55; \text{ d.f.} = 112; P < 0.001$			

Libido or sexual desire

An impairment of libido or the sexual desire was noted in almost all the cases with impotence i.e. 45 out of 47 diabetics and 5 out of 7 controls with sexual dysfunction, had partial or complete loss of libido.

Attitude of patients towards their sexual dysfunction

Majority of the patients of the control group (71.4%) were worried over their sexual dysfunction. On the other hand, a good number of diabetics were either indifferent (27.7%) or concerned without being worried (40.4%) over their diminished or absent sexual functions (Table 5). Diabetes itself was their main worry. Only about a fourth (27.7%) were worried over sexual disturbances. Interestingly, two cases (4.2%) felt happy to be relieved of their sexual desire.

Table 5
Attitude of the patients towards declined/absent sexual functions

Attitudes	Diabetics (n=47)*		Controls (n=7)*	
	No.	%	No.	%
Worried	13	27.7	5	71.4
Concerned but not worried	19	40.4	2	28.6
Indifferent	13	27.7	-	-
Happy	2	4.2	-	-

* Denote number of cases with sexual dysfunction.

Relation of sexual dysfunction with age

The frequency of impotence remained several times higher in the diabetics, compared to controls, in all the age groups. However, the effect of advancing age was much more pronounced in the diabetics. The frequency of impotence in the control group was 9.4% upto 40 years of age and 12.5% beyond 40 with an absolute rise of 3.1% or a rise to the tune of 33.3% of the first value. As against this, the frequencies in the diabetics were 50% and 90% respectively, below and beyond 40 years - an absolute rise of 40% or a rise to the tune of 80% of the first value (Table 6).

Table 6
Frequency of sexual dysfunction by age in the study group.

Age group (years)	Total cases	Cases with sexual dysfunction	
		No.	%
Upto 20	4	1	25.0
21-30	14	8	57.1
31-40	8	4	50.0
41-50	19	18	94.7
51-60	15	12	80.0
61-70	3	3	100.0
> 70	1	1	100.0
Total	64	47	73.4

$\chi^2 = 12.4$; d.f. = 4; $P < 0.05$

Relation of sexual dysfunction with body weight

Though nearly two thirds (62.5%) of the diabetics were under weight and only a fourth (25.0%) over weight, impotence was more common (87.5%) in the latter compared to the former (72.5%) or in the patients with normal weight (50.0%). However, there was no significant effect of weight on the sexual function ($P > 0.1$), proving that diabetes and not the weight was the determinant (Table 7).

Table 7
Sexual dysfunction by body weight in the study group

Body weight	Total cases	Cases with sexual dysfunction	
		No.	%
Under weight	40	29	72.5
Normal weight	8	4	50.0
Over weight	16	14	87.5

$\chi^2 = 3.8$; d.f. = 2; P NS

Discussion

Being a chronic disease of obscure aetiology, diabetes poses many problems in its understanding and management - both for the patient and the physician. Sexuality is one such poorly understood facet of diabetes. Though perceptive clinicians have been noticing and commenting upon the impaired sexual functioning of the diabetic ever since the turn of the century (Von Noorden 1903, Naunyn 1906), the subject has received scarce systematic scientific attention, particularly in our country (Alam et al. 1981 and Gahlaut and Sharma 1982), where we do not have prevalence rates of sexual disturbances even for the general population.

In the light of the above facts, it is hardly surprising that opinions have varied widely. Thus while on the one extreme,

Joslin et al. (1959) felt sexual disturbances to be exceedingly rare in diabetes, Khandelwal et al. (1981) found them in as many as 84% of their patients. Most of the workers have reported figures in between these two extremes, i.e., around 50% of male diabetics have been found to have sexual dysfunctions (Rundles 1945; Rubin and Babbott 1958; Schoffling et al. 1963; Kolodny et al. 1974; Herman et al. 1978 and Krosnick and Podolsky 1981). This variation is most probably a reflection of the differing case selection criteria, varying intensity of the interrogations, imprecise use of terms and lack of statistical rigour, as has been alluded to earlier.

To obviate these problems, in the present study, a reasonably adequate number (64) of consecutive male diabetics, fulfilling strict diagnostic criteria, were interrogated intensively and investigated thoroughly to arrive at an over-all assessment of their sexual functioning. Fifty age matched non-diabetic and apparently healthy males were subjected to identical interrogations to serve as controls. The two groups turned out to be comparable in marital and socio-demographic variables as well.

Nearly three fourths (73.4%) of the diabetics had sexual disturbances as compared to just 14.0% of the controls, the difference being highly significant ($P < 0.001$). This figure was considerably higher than those reported by most of the earlier workers, viz., 10% by Gahlaut and Sharma (1982); around 25% by Lester et al. (1980); around 35% by Alam et al. (1981) and Campbell and McCulloch (1979) and around 50% by Rundles (1945), Rubin and Babbott (1950), Frank et al. (1978) and Gebhard and Johnson (1979). The present high figures could be because of the intensity and thoroughness of the interrogations. As Tattersall (1982) has

pointed out, patients do not divulge their sexual problems unless asked for specifically by the physician in an atmosphere of privacy. This could be the reason for Joslin's (Joslin et al. 1959) comment that sexual disturbances were rare in diabetes. On the other hand an even higher figure (84%) has been reported by Khandelwal et al. (1981).

There have been very few controlled studies on the problem. Most of the workers have compared their results with the frequency of sexual disturbances in the American population reported by Kinsey et al. (1948) or Masters and Johnson (1970). This way, the consensus of opinion is that sexual disturbances are about five times as common amongst diabetics as in the general population (Rubin and Babbott 1958; Frank et al. 1978 and Gebhard and Johnson 1979). Our figures are in absolute agreement, 73.4% and 14.0% respectively of the diabetics and controls having sexual disturbances - a ratio of slightly above 5 : 1. The foregoing discussion makes it glaringly clear that sexual problems of diabetics are enormous, more than half having some disturbance or the other. At this rate, out of nearly 20 million estimated diabetics in the country, more than 10 million could be plagued by distressing sexual problems - a staggering figure indeed!

Out of the 47 (73.4%) cases with sexual disturbances, all but one had impotence (erectile failure, of varying degrees. Three of them had premature ejaculation in addition to impotence and one case had premature ejaculation only. There was no case with retrograde ejaculation. Thus impotence could be taken as the prototype of the sexual dysfunction seen in diabetics. The discussion henceforth will therefore dwell largely upon its various aspects. The other two distur-

bances viz., premature and retrograde ejaculation will be discussed briefly thereafter.

Impotence

The features of impotence observed in our cases do not completely fit into any of the two types of diabetes-related-impotence that have classically been described (Kolodny et al. 1979), in the *first*, failure of erection has been described to occur in the context of poor diabetic control, is accompanied by loss of interest in sex and general malaise; all the symptoms reverse with the control of diabetes (Kolodny et al. 1979). Our cases did not conform to this type since there was no relation between the sexual disturbance and the mode or degree of control of diabetes. The *second* type, said to be characteristic of diabetes, has been described as progressive and irreversible in which all erections are affected and which is not associated with any loss of sexual interest. The cases in the present series did not entirely fit into this category either since they had marked loss of sexual desire and the impotence was partial in a substantial proportion (one third) of cases, i.e., the patients had erections though they were rather less frequent and of lesser intensity.

Thus our cases had rather "intermediate features". Similar findings have been reported by Schiavi and Hogan (1979) the Scott et al. (1980). The validity of clinical stereotypes of diabetic impotence have recently been questioned by other workers too (Fairburn 1981; Fairburn et al. 1972 and Tattersall, 1982). Fairburn et al. (1982) examined 27 patients in detail and found that morning/spontaneous erections were present though at a substantially reduced frequency and intensity in most of the diabetics with impotence. They therefore questioned the "either/or" concept of the psychogenic-organic dimen-

sion and emphasized that these two factors might interact and therefore it should not be surprising that there were no simple associations. The erectile impotence of diabetics is mostly the result of a progressive physical disorder and therefore organic in nature. Superimposed upon it are the psychological reactions of the patient and his partner which may significantly worsen the problem - the "psychogenic" or the "functional" component. Viewed this way it may be helpful to improve the gloomy prognosis of diabetic impotence by appropriate counselling to minimise the psychological reactions (Renshaw 1979; Fairburn et al. 1982 and Tattersall 1982). These authors concluded that the current view of diabetic impotence was misleadingly oversimplified; pure "organic" or pure "psychogenic" impotence was an exception with most of the cases being characterized by a complex mixture of organic and psychogenic features.

Our finding that there was a marked impairment of libido (sexual desire) in 45 out of 46 diabetics with impotence was in sharp contrast to the observations of most of the other workers (Rubin and Babbott, 1958; Ellenberg 1971; Kolodny et al. 1974; Lester et al. 1980 and Krosnick and Podolsky 1981). However, there are few reports conforming to our findings that libido does show a decline (Alam et al. 1981; Khandelwal et al. 1981 and Fairburn et al. 1982). Alam et al. (1981) reported impairment of libido in 70 per cent of their cases and Fairburn et al. (1982) in 44 per cent. However, there being no objective measurement of sexual interest, data are subjective and anecdotal.

The frequency of impotence was several times higher in diabetics, compared to controls, in all age groups. However, the frequency beyond 40 years compared to that upto 40 years showed 80% rise as

against just 33.3% in the controls. These findings were in agreement with those of Schoffling et al. (1963) who reported 29 per cent frequency of impotence in diabetics under the age of 30 years as against 73 per cent beyond 60 years. Similarly, Alam et al. (1981) reported maximum frequency in the fifth decade. Thus although sexual vigour declines with age even in the general population (Kinsey et al. 1948), in the diabetics this relation becomes much more pronounced (Rubin and Babbott 1958; Klebanow and MacLeod 1960; Schoffling et al. 1963; Kolodny et al. 1974; Alam et al. 1981 and Gahlaut and Sharma 1982).

Ejaculatory disturbances

Only one case in the study group had *premature ejaculation*. There were further three cases who had premature ejaculation in addition to partial impotence. Thus a total of 4 (6.3%) of the diabetics had this disturbance. In view of its frequency premature ejaculation does not therefore appear to be a significant problem in the diabetic males since lower frequencies have been reported by other workers also, e.g. 2 per cent by Kolodny et al. (1970) and 7.5 per cent by Alam et al. (1981). The disturbance appears to be rather overshadowed by the over-riding frequency of erectile failure.

Retrograde ejaculation has been reported to occur in 1-2 per cent of diabetics (Rubin and Babbott 1958; Klebanow and MacLeod 1960; Ellenberg 1971; Ellenberg and Weber 1966; Kolodny et al. 1974 and Alam et al. 1981). It almost never occurs in the general population. There was no such case in either of the two groups in the present study. This could be because we studied only 64 diabetics- a number rather small for studying the frequency of a relatively uncommon disturbance like retrograde ejaculation.

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