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CLINICAL ARTICLES

IMPOTENCY IN MALE DIABETICS

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Introduction: Male sexual potency has been difined as the ability to initiate, sustain and successfully conclude the act of sexual interouse to the satisfaction of the male. Both sex drive and potency are complex individual phenomena influenced by the anterior pituitary, the gonads, the adrenals and many psychological factors (Simpson 1950). The impaired sexual potency might comprise of complete absence of libido, absence of erection, spontaneous or stimulated, incomplete or weak erection insufficient for penetration and premature ejaculation or detumescence.

Most patients are hesitant to volunteer this complaint freely and even after direct questioning.

Nevertheless from organised studies the incidence of impotence in male diabetics has been reported to vary from 27 5% to 90% (Rundle, 1945; Horstmann, 1949; 1950; Martin, 1953; Bergqvist, 1954; Rubin and Babbot, 1958; Keen, 1949 and Schoffling et al. 1963).

The present study was undertaken to find out the incidence of impotence in male diabetics admiteed to the wards of or attending the Diabetes Clinic of Nehru Hospital, Chandigarh.

Material and Methods: Details of clinical history and physical examination in 216 married male diabetics were recorded on a special proforma. Once their confidence was won, details of sex function were enquired and the hesitant ones were interrogated on subsequent visits.

Age matched 1010 married normal healthy males, who were relatives or attendants of indoor patients were also interrogated about sex function.

In a representative sample from normal healthy subjects and diabetics with and without impotence, testicular functions like testicular biopsy, semen analysis

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and urinary 17-ketosteroids excretion were carried out. The detailed results of 17-ketosteroids and testicular biopsy will be reported separately.

After three days abstinance a fresh masturbation sample of semen was collected in the laboratory in a dry wide mouthed glass tube. The specimen was allowed to stand for 15-20 minutes for liquifaction to take place. Following observations were made:—

(a) Quantity, (b) Colour, (c) Consistency-, this was judged by allowing the seminal fluids to flow along the walls of the test tube before liquifaction occurred, (d) Reaction, (e) Motility after ½, 1 and 2 hours of ejaculation, (f) abnormal forms.

Results: In the control group of 1010 subjects 39 (3 85%) complained of decreased sexual potency, 25 (2 4%) had partial failure of erection and two subjects had more or less erectile impotence. Ten (0.99%) subjects had diminished libido. True ejaculatory impotence (incapacity to ejaculate even when aroused and in erection) was observed in 2 out of 1010 subjects.

Among the diabetics 150 patients (69 4%) out of 216 complained of decreased potency. Most of these patients came out with this complaint on direct questions. Table I shows the prevalence of impotence in normal subjects and diabetics in five year age groups.

The most commonly encountered complaint was partial or complete failure of erection. Out of 150 patients complaining of impotence, fifty patients (33.3%) complained of partial loss of erection, 8 of them had normal libido Three patients (2%) had premature ejaculation and 1 had primary sterility. Nine (6%) patients had diminished libido. Table 2 shows the relationship between duration of diabetes and incidence of impotence. It is evident that duration of diabetes had no significant influence on the occurrence of this complaint in diabetics.

Table 3 shows the prevalence of various other complications of diabetes in diabetics with and without impaired potency. Neuropathy (Subjective symptoms with impaired sensations and/or loss of deep reflexes) was significantly more prevalent in diabetics with impotence as compared to those with normal sex function. Other complications of diabetes were equally prevalent in the two groups.

Diarrhoea: Two (3.03%) patients without impotence had early morning diarrhoea. In the impotent group this type of diarrhoea was nocturnal while in 10 patients it was in the early hours of morning.

Size of testes and prostate: Examination of 150 diabetics with impotence revealed a reduction in the size of the testes in four patients and reduced consistency of the testes in ten patients. The size of the prostate was found to be normal in all cases.

In one year follow up of patients and repeated interrogation of those who had impotency of more than one year duration, none had return of potency once it was lost.

Semen analysis: This was carried out in 10 normal subjects and in 25 diabetics each with and without impotence.

There was no difference in the colour, odour, consistency or reaction of the semen from normal subjects and either group of diabetics.

The other findings are shown in table 4. The volume of seminal fluid was significantly less ($P < 0.01$) in either group of diabetics as compared to the normal subjects. There was no significant difference ($P > 05$) between the two groups of diabetics.

The motility at $\frac{1}{2}$, 1 and 2 hours after ejaculation was significantly ($P < 0.01$) diminished in either group of diabetics as compared to the normal subjects.

The sperm count was also significantly ($P < 0.01$) less in either group of diabetics as compared to the normal subjects but there was no significant difference ($P > 0\ 05$) in between the two groups of diabetics.

The mean ($\pm$ S. D.) 24 hours urinary 17-Ketosteroid excretion in 20 normal subjects was 10.5 ± 2.8 mg. It was significantly ($P < 0.05$) higher than that in impotent diabetics (6.3 ± 4.2, $n = 40$) as well as diabetics with normal sex function (7.2 ± 4.1, $n = 26$). There was no significant ($P < 0\ 05$) difference between the two groups of diabetics.

The testicular histology in 4 out of 25 diabetics with impotence and 6 out of 11 diabetics with normal sex function was entirely normal Rest of the patients showed varying grades of abnormality such as thickening of the basement membrane of the seminiferous tubule, maturation arrest and complete tubular atrophy. Cnanges in testicular histology were not necessarily associated with impaired sexual potency.

DISCUSSION

The incidence of impaired sex function increased with advancing age both in normal subjects and diabetics. It was 10 to 35 times more prevalent among diabetics as compared to normal subjects (Table I). The overall incidence of (69.4%) impotence in this series is higher than most reported series. Rubin and Babbot (1958) had found it in 55% of cases. These authors had covered a wider age range (16–92 years). Schoffling et al (1963) reported the prevalence of impotence in 51% of 314 male diabetics. Joslin (1946) had however reported that this complication was rarely met with in diabetes.

The commonest complaint was partial or complete failure of erection. Simpson (1950), Bergqvist (1954), Rubin, and Babbot (1958) and Schoffling et al (1963) had also reported similarly. Libido is not lost in majority of cases and may sometimes be increased. Sixty per cent of the cases with impotence did not experience any morning erections and this suggests that in a significant proportion the impotence was organic Kinsey (1948) and Simpson (1950) have however suggested that the role of psychic factors in presence of organic disease cannot be ruled out.

The duration of diabetes did not appear to have a significant effect on the incidence of impotence (table 2). The finding of impotence in 70% of diabetics with less than one year duration of diabetes was rather high. Impotence early in the course of diabetes has been reported by other workers also but not in such a high proportion. (Rubin and Babbot 1958 and Schoffling et al 1963). Tne probable reasons could be that in younger diabetics with more severe metabolic derangement when onset of diabetes could be timed accurately, the treatment was usually irregular. Most patients requiring insulin did not take it in adequate dosage regularly. In the case of older diabetics with milder symptoms it would be difficult to say exactly how long they had been diabetic although the duration of known diabetes was less than one year.

Simpson (1950) expressed the belief that persistant impotence was not common in well controlled diabetics and that therapeutically it was refractory to testosterone. Schoffling et al (1963) however reported excellent results with testosterone and gonadotrophin therapy. In the present series return of potency, once it was lost, was not observed in a single case. Ten patients given testosterone for 3-6 months also failed to derive any benefit whatsoever.

The prevalence of associated neuropathy in diabetics with impotence was significantly higher than in those with normal sex function (table 3). There was however, no significant difference between the two groups of diabetics so far as other complications of diabetes were concerned. Rundle (1945) and Ellenberg (1963) have suggested that the most likely cause of impotence in diabetics was autonomic neuropathy, although other investigators have not found any correlation between diabetic neuropathy and impotence (Rubin and Babbot, 1958 and Schoffling et al 1963).

The seminal fluid abnormalities in diabetics with and without impotence were identical. In both groups of diabetics the volume, motility and sperm count was significantly reduced in comparison to normal subjects. Eleven diabetics produced less than 1 ml ejaculate. Sixteen diabetics had sperm count less than 40 million per ml. Klebanow and Macleod (1960), Rubin (1962) and Schoffling et al (1963) had also reported a diminution in the volume of the ejaculate. Oakley (1949) and Klebanow and Macleod (1960) did not find any reduction in semen volume or sperm motility. The seminal fluid findings reported here and the results of 17-Ketosteroid and testicular histology all suggested that irrespective of the presence of impotence diabetics showed a depression of testicular function.

SUMMARY

In a study of the prevalence of impotence in 216 married male diabetics (age 20-25 years) and age matched 1010 normal healthy subjects it was found that impotence was 15-30 times more prevalent amongst diabetics. The incidence of impotence both in normal subjects and diabetics increased with advancing age, it was however not affected by the duration of diabetes. Neuropathy was significan.

tly more commonly observed in diabetics with impotence. Other complications of diabetes were evenly distributed.

There was depression of testicular function in diabetics whether or not they had impotence Seminal fluid volume, sperm count and motility in diabetics were significantly less than in the normal subjects. Similarly urinary 17-Ketosteroid excretion in diabetics was significantly less than that in normal subjects. Changes in testicular histology such as basement membrane thickening, maturation arrest and complete atrophy of the seminiferous tubules were not necessarily associated with loss of sexual potency

Table I

Showing incidence of impotence in 216 male diabetics and 1010 normal healthy subjects in different age groups.

Age in years	No. of cases		No. Impotent		Percent Impotent	
	Diabetics	Normal	Diabetic	Normal	Diabetic	Normal
21–25	28	60	9	1	32.1	1.66
26–30	23	110	14	2	60.8	1.80
31–35	31	105	21	2	67.7	1.90
36–40	22	200	17	5	77.2	2.50
41–45	27	90	21	2	77.7	2.22
46–50	30	180	24	8	80.0	4.44
51–55	55	265	44	19	80.0	7.10
Total	216	1010	150	39	69.4	3.86

Table 2.

Showing incidence of Impotence among 216 diabetic men according to duration of diabetes.

Duration DM Yrs.	No. of cases	No. Impotent	Percent Impotent
0 — 1	40	28	70.0
2 — 5	100	67	67.0
6 — 10	36	26	72.2
11 — 15	28	20	71.1
16 — 20	8	6	75.0
21 — 25	3	2	66.6
26 — 30	1	1	100.0

Table 3.

Showing Incidence of various associated complications of diabetes

	With Normal Sex Function		With Impotence	
	No.	Percent	No.	Percent
Neuropathy	13	20.0	76	50.6
Nepropathy	12	18.1	30	20.0
Angiopathy	10	15.1	27	18.0
Retinopathy	10	15.1	32	21.3
Diarrhoea	2	3.03	15	10 0

Table 4.

Details of seminal fuid findings in normal and diabetic subjects

	Normal	Diabetics	
	N = 10 Mean ± S. D.	Normal sex function. N = 25 Mean ± S. D.	Impotent N = 25 Mean ± S. D.
Volume in ml per ejaculate	3.58 ± 0.94	1.90 ± 1.19	1.68 ± 0.91
Motility (% Mobile)			
½ Hour	59.7 ± 10.04	28.30 ± 14.49	26.20 ± 18.26
1 „	34.5 ± 16.37	12.90 ± 7.56	8.12 ± 9.2
2 „	12.0 ± 4.02	2.76 ± 3.52	1.68 ± 2.71
Sperm count (Million ml)	70.9 ± 26.73	58.12 ± 29.35	44.12 ± 20.74

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