



GLYCAEMIC YEARS RATHER THAN GLYCAEMIC CONTROL CORRELATES WITH ERECTILE DYSFUNCTION

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ABSTRACT **Purpose:** To evaluate the association between the duration of diabetes and glycaemic control (HbA1c) and the severity of erectile dysfunction (ED) in men with diabetes mellitus

Material and Methods: it was an observational study; subjects having diabetes mellitus were evaluated for erectile dysfunction. History, examination and investigations were done and data was analysed. IIEF-5 questionnaire was used for assessment. Correlation between severity of erectile dysfunction with duration of diabetes and HbA1C was assessed. Ethical approval and consent from patient was not taken as it was an observational study.

Results: With increase in duration of diabetes incidence and severity of erectile dysfunction increases. Among Patients having diabetes for less than 1 year 35.2%, had no erectile dysfunction, 41.4% had mild and 4.8% had severe erectile dysfunction and among patient having diabetes for greater than 10 years 8.4% had no erectile dysfunction, 24.2% had mild and 39.6% had severe ED. However there was no correlation between HBA1C level and incidence or severity of erectile dysfunction. Among patient having HA1C level less than 7% 20.6% had no erectile dysfunction, 34.5% had mild and 19.9% had severe erectile dysfunction. in patients having HBA1C level greater than 9% 17.8% had no erectile dysfunction, 31% had mild and 23.9% had severe erectile dysfunction.

Conclusion: Duration of diabetes i.e. glycaemic years are statistically associated with higher incidence and severity of erectile dysfunction. Glycaemic control as assessed by HBA1C shows no association

KEYWORDS : Erectile dysfunction, Diabetes, IIEF-5 questionnair

INTRODUCTION:

Erectile dysfunction (ED) is defined as the inability to achieve and maintain penile erection sufficient for satisfactory sexual intercourse.^[1] Diabetic men have almost a threefold higher probability to develop ED compared with non-diabetics.^[2] Reported prevalence of ED of 35–90% in those with diabetes in different populations.^[3,4] The pathophysiology of ED in diabetes is multifactorial. Under normal circumstances, both biological and psychological factors work synchronously resulting in an erection.^[5] They are also prone for the onset of ED to occur 10 to 15 years earlier than in non-diabetic men.² It is less responsive to medical treatment compared with ED in non-diabetic men.^[6] Association between erectile dysfunction and glycaemic control is variable, most show positive association between ED and glycaemic control.^[7,9] Some showed only a weak correlation^[16] and some studies have shown a borderline significant association.^[10,11]

METHODS:

patients in age group of 20 to 80 years having diabetes mellitus presenting to OPD October 2016 to December 2018 (2 years) were included and evaluated for erectile dysfunction and diabetes. Thorough evaluation and erectile dysfunction related investigations were done. Patients were subjected to IIEF-5 questionnaire. Subjects were reclassified as having no (26–30), mild (17–25), moderate (11–16) or severe (0–10) ED.^[12] Patients having identifiable causes of ED other than diabetes were excluded. Correlation between ED with glycaemic years and HbA1c was assessed.

RESULTS:

A total of 796 patients were included. Duration of diabetes, hba1c and ed were analysed. Incidence of erectile dysfunction was 79.4%. Patients were subjected to IIEF-5 questionnaire. Patients were also tabulated according to duration of diabetes and Hba1c level. With increase in duration of diabetes incidence of erectile dysfunction increases effecting 64.8% of patients having hyperglycaemia for less than 1 year 91.6% for duration of hyperglycaemia greater than 10 years. Severity of erectile dysfunction increases with duration of diabetes. Subjects having less than one year of hyperglycaemia had 60(41.4%) had mild and 7(4.8%) had severe ED. For diabetes greater than 10 years 52(24.2%) had mild and 84(39.1%) had severe ED. Table 1

Duration Diabetes	0-1	Count	EDScore				Total
			Normal	Mild	Moderate	Severe	
			51	60	27	7	145
		%	35.2%	41.4%	18.6%	4.8%	100.0%
	1-5	Count	61	93	60	21	235
		%	26.0%	39.6%	25.5%	8.9%	100.0%
	5-10	Count	34	66	54	47	201
		%	16.9%	32.8%	26.9%	23.4%	100.0%
	>10	Count	18	52	61	84	215
		%	8.4%	24.2%	28.4%	39.1%	100.0%
Total		Count	164	271	202	159	796
		%	20.6%	34.0%	25.4%	20.0%	100.0%

Chi square = 120.72, p = 0.000 (HS)

In our study we also assessed grading of ed with respect to level of HBA1C. among subjects having HBA1C level less than 7, 59(20.6%) had no ed, 99(34.5%) had mild, 72(25.1%) had moderate and 57(19.9%) had severe ED with increase in level of HBA1C the increase in incidence and severity of ed was not significant. Among Subjects having HBA1C level greater than 9, 53(17.8%) had no ED, 92(31%) had mild, 81(27.3%) had moderate and 71(23%) had severe ed. correlation between ed and HBA1C is given in Table 2

HbA1c	<7	Count	EDScore				Total
			Normal	Mild	Moderate	Severe	
			59	99	72	57	287
		%	20.6%	34.5%	25.1%	19.9%	100.0%
	7-8	Count	23	44	18	14	99
		%	23.2%	44.4%	18.2%	14.1%	100.0%
	8-9	Count	29	36	31	17	113
		%	25.7%	31.9%	27.4%	15.0%	100.0%
	>9	Count	53	92	81	71	297
		%	17.8%	31.0%	27.3%	23.9%	100.0%
Total		Count	164	271	202	159	796
		%	20.6%	34.0%	25.4%	20.0%	100.0%

Chi square = 14.98, p = 0.092 (NS)

DISCUSSION

Muscle relaxation in the cavernous body and associated blood vessels increases penile blood flow and cause erection^[13]. Nitric oxide plays a major role in this process as it is one of the most important endogenous smooth muscle relaxants. Erection depends on complex interaction of sensory fibres and autonomic fibres.^[14,15] Chronic hyperglycaemia reduces expression of target-derived nerve growth factor.^[16] With increase in age incidence of erectile dysfunction also increases.^[17] Thomas *et al.*'s^[18] study has shown that patients diagnosed with ED are mostly older and the commonness of the ED condition increased with age. Most of studies show positive correlation between diabetes and erectile dysfunction. Incidence of ED in diabetic population is high; it was 79.4% in our study. Other authors have reported 35 to 90%^[3,4], however Daniel Peter Andersson *et al.*^[11] used rigiscan to measure

number and quality of erections during sleep thus excluding psychogenic cause, they found neither duration of diabetes nor HbA1C level effect erectile dysfunction. In our study we observed that with increase in number of years of hyperglycaemia incidence and severity of ED also increases. incidence of ED is 64.8% for duration of hyperglycemia less than one years, 83.1% for duration of diabetes 5 to 10 years and 92.6% for duration of diabetes greater than 10 years, likewise severity also increases with increase in years of hyperglycaemia, percentage of patients effected with mild ED decrease while with severe ED increases Correlation between glycaemic control and ED is variable as different authors have published different results. Lu et al^[19] showed a significant positive association between ED and glycaemic control. Cho et al^[20] showed a weak relationship between HbA1c level and diabetes related ED when using a multiple logistic regression analysis to identify risk factors for all types of ED. Several studies had demonstrated an insignificant correlation between glycaemic control and ED in diabetics men.^[11,21-23] In our study correlation between HbA1c level and ED was insignificant. HbA1C level was checked in all patients, results were tabulated, we find that with increase in level of HbA1C level incidence and severity of ED remain almost constant.

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