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Management compliance towards diabetes mellitus type II among male and female patients¶.

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Abstract:

Introduction: Diabetes mellitus is an unceasing metabolic disorder which is rapidly growing and has become serious public health problem. Compliance of diabetic patients with lifestyle prescription is an essential component of diabetes management.

Objectives: To determine and compare the compliance of male and female type 2 diabetes mellitus patients with life style modification factors.

Methodology: This Cross-sectional study was conducted from April to June 2017 at the Liaquat university hospital, Hyderabad. Type 2 diabetic patients (age >40 years) of either gender, diagnosed at-least one year prior, visited to the outpatient department of Liaquat university hospital, Hyderabad were included. Non-probability convenient sampling technique was applied. Data was obtained through personal interviews using a semi-structured written questionnaire. The data was analyzed using SPSS v.19 with significant level at $p<0.05$.

Results: Out of 431 diabetic patients, 156 (36.2%) were males and 275 (63.8%) were the females. The mean age of the patients was 49.94 years ±8.675 SD. Statis- tically significant difference in Illiteracy rate between the female and male diabetic patients ($p <0.001$). Over two-third (74%) of male and 70% of female diabetic patients had changed their diet. Statistically significant difference between male and female in compliance with exercise was identified. ($p<0.001$).

Conclusion: Compliance with modification in exercise is poor while with modification in diet is good among the type II diabetic patients while the male diabetics are more compliant towards life style modification factors then female.

Keywords: Diabetes mellitus Type 2, Compliance, Lifestyle modification factors, Exercise, Diet, Knowledge of Diabetes.

Introduction:

Diabetes mellitus (DM) is an unceasing metabolic disorder which is characterized by means of decreased insulin secretion/function leading to hyperglycemia. Type 1 diabetes mellitus (T1DM) occur due to deficiency of insulin production and diabetes mellitus Type 2 (T2DM) occur due to insulin receptor dysfunction.[1] Diabetes mellitus is now documented as the epidemic disease of the 21st century disturbing millions of people worldwide.

T2DM is the major cause of morbidity and mortality which is rapidly growing globally and has become serious public health problem.[2-5] According to Internatio

Diabetic Federation atlas 2017, worldwide about 425 million have diabetes in 2017 and it will become 629 million in 2045. Pakistan has the tenth largest population of diabetes. Pakistan had an estimated 7.5 (5.3 – 10.9) million people affected with diabetes in, and this number is predicted to increase upto16.1 million (11.5-23.2) by the year 2045.[6] Compliance in health care has been described as "the extent of adherence of patient's behavior in term of taken to medical treatment and following diets or executing another lifestyle".[7] As T2DM-can be controlled but not cured, so in case of it management, compliance is a key factor. Compliance among T2DM patients with lifestyle prescription is an essential component of its management. Many studies show that diabetic patients are less compliant (32%-37 %) to life style prescription of their doctor.[8-10] Due to noncompliance, metabolic control is decreased consequently increasing the risk of complication.[2] As a primary prevention of T2DM, lifestyle modifications are an important and foremost pillar of T2DM.Unbalance eating habits and unsatisfactory physical activity are main contributors to the development of diabetes. Lifestyle modifications not only improve glycemic control but are also helpful in maintaining good quality life.[11] Good glycemic control is considered a basic component of the management of diabetes mellitus and prevention of complications.[12] Lifestyle modification with diet and exercise are helpful not only in reducing the risk of developing the diabetes type 2 but also in reduces the risk of the complications due to diabetes.[13] The Diabetes prevention program states that an intensive lifestyle intervention could be helpful for reducing the incidence of type 2 diabetes by 58% over 3 years.[14] Non-pharmacological management is also required with pharmacological intervention for controlling diabetes.[15] Complications of T2DM are serious health issue due to negligence in compliance. Though lot of work have been done in this area but careless attitude leads towards disabilities and premature death that's why this study has been conducted to determine the current level of compliance of diabetic patients. This study will be helpful to improve the patient's knowledge about compliance which ultimately lead to decrease morbidity and mortality.

Objective:

To determine and compare the compliance of male and female T2DM patients with life style modification factors.

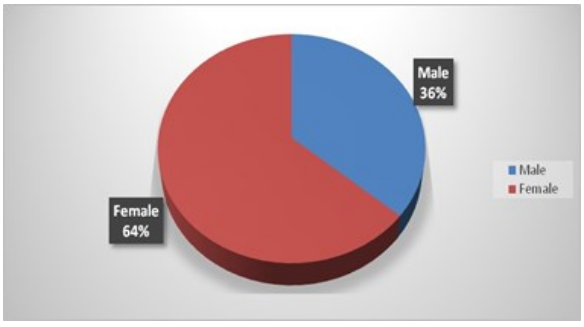
Methodology:

This cross-sectional study was conducted from April to June 2017 at the Liaquat university hospital, Hyderabad. All patients of type 2 diabetes (age >40 years), of either gender, diagnosed as having T2DM at-least one year prior and haven't took any insulin for treatment, visited to the outpatient department of Liaquat university hospital, Hyderabad were included. While those suffering from any type of DM other than T2DM, who underwent to medical treatment, severely ill, not willing to participate in a study and who were suffering diseases others than diabetes were excluded. Nonprobability convenient sampling technique was applied for selection of participants. Data was obtained through personal interviews using a semi-structured written questionnaire after informed consent. Ethical permission was taken from the ethical research committee of LUH Hyderabad. Frequencies and percentages were used for the categorical variables while Chi square test applied to compare the categorical variable. A p value of less than 0.05 was considered statistically significant. The data was analyzed using SPSS v.19 with significant level at $p<0.05$

Results:

Total 431 diabetic patients having age range between 41-69 years were recruited in the present study. The mean age of participants was 49.94±8.67. The mean age of male participants was 52.54±8.761 years, and for female it was 48.47±8.28. The gender distribution od study participants is shown in figure 1

Figure: 1. Gender distribution of participants (n=431)



Gender wise socio-demographic characteristics of study patients and the differences (gender wise) is mentioned in table I below. Majority participants were illiterate, unemployed and had poor economic status. Moreover, majority of the patients had good knowledge regarding diabetes mellitus. Statistically significant difference ($p<0.05$) observed in socio-demographic features like

education, occupation status economic status and knowledge regarding DM between male and female patients as shown in table no 1.Table ll showing the compliance of male and female diabetic patients with exercise and diet. Statistically significant ($p<0.05$) in performing exercise between male and female.

Table I: Baselines demographics characteristics of study participants (n=431).

Demographic characteristic		Total (431)		Male (156)		Female (275)		p-value
		n	%	n	%	n	%	
Education	Illiterate	225	52.2	53	34	172	63	<0.001
	Primary	80	38.6	25	16	55	20	
	Middle	41	9.5	22	14	19	7	
	Secondary	33	7.7	16	10	17	6	
	Higher secondary	23	5.3	15	10	8	3	
	Graduate	29	6.7	25	16	4	1	
Occupation	Employed	128	29.7	99	63	29	11	<0.001
	Unemployed	303	70.3	57	37	246	89	
Economic status (Monthly Income)	< 20,000Rs (Poor)	270	62.6	76	49	194	70	<0.001
	20,000-50,000Rs (Lower Middle)	141	32.7	70	45	71	26	
	50,000-100,000Rs (Upper middle)	20	4.6	10	6	10	4	
Knowledge of diabetes	Yes	350	81.2	140	90	210	76	<0.001
	No	81	18.8	16	10	65	24	

Table ll: Compliance of Male and Female Diabetic Patients for Exercise and Diet (N=431)

		Total participants		Male (n=156)		Female (n=275)		p value
		n	%	n	%	n	%	
Exercise	Yes	148	34.3%	73	47%	75	27%	0.000*
	No	283	65.7%	83	53%	200	73%	
Reason for not doing exercise	No time	38	13%	16	19%	22	11%	0.223
	Workload	101	36%	26	31%	75	38%	
	Tired	80	28%	19	23%	61	30%	
	Any disease/Fracture	64	23%	22	27%	42	21%	
Change diet	Yes	308	71.5%	116	74%	192	70%	0.375
	No	123	28.5%	40	26%	83	30%	
Stop sweet	Yes	336	78.0%	125	80%	211	77%	0.469
	No	95	22.0%	31	20%	64	23%	
Stop Soft Drink	Yes	339	78.7%	128	82%	211	77%	0.222
	No	92	21.3%	28	18%	64	23%	

Discussion:

Diabetes is a chronic metabolic disorder causing hyperglycemia[16] which leads to long term damage of different organs including heart, eyes, kidneys, nerves and vascular system. Patient's compliance with medications, diet patterns and life style modifications help in managing diabetes mellitus type 2 and decrease the risk of complication due to diabetes.[17-19] Life style interventions would be effective for preventing type 2 diabetes in high-risk population.[20-22] This study has been carried out among 431diabetic patients; 156 (36%) were males and 275 (64%) were females. Another study also shows predominantly female population of 250(64.8%) and 136 (13.5%) males.[7] In the present study the mean age of respondents was 49.94 ±8.675 years. The mean age of male respondents was 52.54 ±8.761 years, similarly mean age of female respondents was 48.47 ±8.286 years. In another study mean

age was 47.6 ±12.6 year.[23] In the present study, 63% females while 34% males were illiterate. Statistically, illiteracy was significantly higher among female diabetic patients than male diabetic patients (p <0.001). Few other studies have also reported higher illiteracy rate.[10,24] In the present study, 63% of male respondents were employed and 37% were unemployed while only 11% females were employed and 89% of female respondents were unemployed, findings are in agreement with published literature.[17] In the present study majority of the diabetic population, around 70% of female and 49% of the male belonged to poor class families. Another study had shown a similar result.[24] In the present study, 90% of male diabetic patients have knowledge of diabetes while 76% of females had knowledge of diabetes (p= <0.001). The results are in agreement with other studies, both national and international, that showed female had less knowledge of diabetes.[1,25] In the present study, 74% of male diabetic patients and 70% of female diabetic patients had changed their diet to manage diabetes mellitus (p=0.375). In this study, 80% of males and 77 % of the female diabetic patients said that they have stopped sweets and 82% of male and 77% of female respondents said that they have stopped cold drink after diagnosis of diabetes mellitus. This reflects good compliance of our patients to diet management plan advice by their doctor. A study in Bangladesh also has shown good compliance with a diet that supports our study.[26] On the other hand, few studies conducted by different researchers in different countries reported poor compliance of diabetic patients to diet management plan.[27,28] Present study's result shows that males were more compliant to diet than female while other study shows that women were more positive to.

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Conflict of interest:

The authors declare that they have no conflict of interest.

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