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Diabetology

"DIABETIC FOOT CARE"- A HOSPITAL BASED KNOWLEDGE ATTITUDE AND PRACTICE STUDY AMONG TYPE 2 DIABETES MELLITUS PATIENTS FROM AMRAVATI DISTRICT.

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ABSTRACT

BACKGROUND: Diabetes mellitus (DM) is a spectrum of diseases characterized by hyperglycemia and associated metabolic abnormalities. An important non communicable lifestyle disease affecting mankind is rapidly increasing and now estimated to affect over 425 million people globally. Among the chronic complications of diabetes, diabetic foot is one of the main chronic diabetic complications. Foot complications from diabetes are one of the main causes of amputation. The aim of the current study was to assess the foot self-care knowledge and the level of practice of foot care principals, among patients with type 2 diabetes.

METHODS: A cross sectional study was carried out on type 2 diabetic patients attending OPD of a Superspeciality hospital. Purposive sampling was applied to select patients. Data was collected based on individual interviews on knowledge, attitude and practices towards diabetic foot care.

RESULTS: Total 225 type 2 diabetic patients participated in the study. Majority of participants correctly knew about diabetes, its complications, investigations done (73%, 68%, 83% respectively). Around 67 % participants knew there is lack of sensation in foot in diabetes and 73 % participants said diabetic persons are prone for foot ulcers. Around 73 % participants were following controlled and planned diet. Only 54% participants had their complete blood examination done one year ago. Around 89% participants changed foot wear only when old one was damaged and only 20% participants inspected their feet daily.

CONCLUSIONS: There prevails good knowledge and poor practice of diabetic foot care among the patients of diabetic foot. The patients have got good positive attitude but this is not reflecting in their practices. The practices of having planned and controlled diet is good but practices like daily exercise and getting their routine investigation done once a year for early diagnosis of complications is least done.

KEYWORDS : Diabetes mellitus, Foot care, Knowledge, Practice

INTRODUCTION

Diabetes is a life-long disease, difficult to treat, often causing a variety of acute and chronic complications, seriously affecting the patient's quality of life. Chronic hyperglycemia, leads to a number of complications-cardiovascular, renal, neurological ocular and others such as concurrent infections. Diabetic foot is one of the main chronic diabetic complications. [1]

According to the International Diabetic Federation Atlas 2017, the prevalence of Diabetes Mellitus in the World is 425 million and an estimated 48% increase is expected to bring this number to 629 million by 2045. The Region of South East Asia including India contributes to a large chunk of this population, with an established prevalence of 82 million as of 2017 with an expected increase by 84% to an estimated 151 million by 2045. [2] India is estimated to have 61.3 million diabetics, which is projected to cross 100 million by the year 2030. [3] In India, the disease is becoming more prevalent in rural areas, in the less affluent and in the younger population, mostly attributable to industrialization and rapid socioeconomic expansion. [4] Diabetic foot has great burden on the health system, as it is the commonest reason for hospitalization of diabetic patients and absorb some 20% of the total health-care costs of the disease more than all other diabetic complications. [5] Especially in a developing country, like India, treating diabetic foot may account for 40 percent of health resources. [6] About 85% of diabetes-related amputations are preceded by foot ulcers, and it accounts for more than half of non-traumatic lower limb amputations. Individuals who develop foot ulcers have a decreased health-related quality of life. [7]

The family is usually unable to cope with socioeconomic cost factors as there is lifelong expenditure for an individual with diabetes. [8] One of the major, unexpected sources of financial burdens in diabetes, is foot related disease in developing countries. [9] Many patients rely on medications alone, neglecting other measures of self-care, foot care is the least practiced. This could reflect lack of understanding of its importance of the consequences by persons with diabetes. [10, 11] Appropriate foot care, good blood glucose control, and diabetes education can prevent up to 85% of the diabetic foot amputations. There is need to investigate knowledge, attitude and behavior among diabetic patients to aid in future development of national health programs and techniques for effective health education. [12]

The aim of the current study was to assess the foot self-care knowledge and the level of practice of foot care principals among patients with type 2 diabetes attending OPD of Superspeciality hospital from Amravati district.

OBJECTIVES

1. To study the knowledge about diabetic foot care in study participants
2. To assess attitude and practices regarding diabetic foot care among study participants
3. To sensitize participants to diabetic foot care and appropriate practices.

MATERIALS AND METHOD

Study design: Descriptive cross sectional study.

Study population/setting: All patients with type 2 diabetes attending OPD of selected Superspeciality hospital from Amravati district.

Study duration: Study was carried out from July to December 2019

Sampling Method and Sample Size: Purposive sampling and sample size was determined by inclusion criteria and study duration.

Selection of Participants

Inclusion criteria:-Type 2 diabetic patients who were willing to participate in study diagnosed at least 6 months back.

Exclusion criteria:- Diabetic patients with foot complications and amputation.

Research tool

Participants were interviewed based on pretested, validated questionnaire in language best understood by them. The questionnaire included questions regarding socio-demographic variables, family history, diabetes control and duration of diabetes followed by knowledge, attitude and practices regarding foot care questions.

Ethical consideration and confidentiality

Institutional ethics committee approval was taken before commencing the study. Data was collected after taking consent along with willingness of participation in study. Data collected was kept confidential. After study was conducted study participants were sensitized to diabetic foot care and appropriate practices.

Statistical analysis

Data was entered into MS excel, Percentages were calculated for qualitative data. Statistical Package for the Social Sciences software for Windows version 20.0 (SPSS Inc., Chicago, IL, USA) used.

Operational definitions

Diabetes Mellitus (DM) is diagnosed if one or more of the following

criteria are met: (1) Fasting Plasma Glucose ≥ 7.0 mmol/L (125 mg/dL); (2) Two – hour plasma glucose ≥ 11.1 mmol/L (200 mg/dL) following a 75g oral glucose load; (3) A random glucose > 11.1 mmol/L (200 mg/dL) or HbA1c ≥ 48 mmol/L (equivalent to 6.5%). But individuals who were already under treatment with oral hypoglycemic agents/insulin were labelled as diabetic irrespective of their blood glucose status.

Types of Diabetes Mellitus: Type 1 (also called Insulin Dependent Diabetes Mellitus or Juvenile Diabetes Mellitus) and Type 2 (also called Adult Onset Diabetes Mellitus). Type 2 is due to insulin resistance developed by the body and Type 1 in most cases involves an autoimmune destruction of the β cells of islets of pancreas. [13]

Regular exercise: At least 30 minutes of brisk walking for 4 days or more in a week.

Regular blood sugar testing: Every quarterly check-up of blood sugar. [14]

RESULTS

Total 225 type 2 diabetic patients participated in the study. Majority 60.45% were from 36-55 years age group. Of the study population, 60% consisted of women. Housewives accounted for 56.44% of the study participants. The demographic details of the study participants are shown in Table 1.

Table 1: Distribution of variables in study participants

Variables	Categories	Number (n=225)	Percentage
Age (Years)	18-35	11	04.88
	36-55	136	60.45
	>55	78	34.67
Gender	Male	90	40
	Female	135	60
Religion	Hindu	86	38.22
	Muslims	130	57.78
	Others	9	4.00
Marital status	Married	181	80.44
	Single	13	5.78
	Divorced	9	4.00
	Widowed	22	9.78
Education	Illiterate	52	23.12
	Grades 1-8th	103	45.78
	Grades 9-12th	57	25.33
	Graduate & above	13	5.77
Occupation	Govt. employee	23	10.23
	Private sector	43	19.11
	Not employed	14	6.22
	Housewives	127	56.44
	Other	18	8.00

Table 2: Distribution of diabetes related variables in study participants

Variables	Categories	Number (n=225)	Percentage
Duration of diabetes (years)	1- 5	119	52.89
	6-10	63	28.00
	> 10	43	19.11
Family history of Diabetes	Yes	115	51.11
	No	110	48.89

Around 19% participants had diabetes for more than 10 years. Family history of diabetes was present in 51 % participants. Details of the diabetes related variables of participants are shown in Table 2.

Table 3: Knowledge of diabetic patients about diabetes and foot care

Sr. no	Questions	Answers	No. of patients(n=225)	Percentages %
1	Is Diabetes hereditary	Yes	103	45.78
		No	55	24.44
		Don't know	67	29.78
2	Do you know thecomplication in diabetes	Yes	153	68.00
		No	27	12.00
		Don't know	45	20.00
3	Do you know the various investigation done in diabetes	Yes	187	83.11
		No	25	11.11
		Don't know	13	5.78
4	Should a Diabeticpersons take medication regularly	Yes	209	92.89
		No	4	1.78
		Don't know	12	5.33
5	Can DM person develop reduced blood flow in their feet	Yes	66	29.33
		No	34	15.11
		Don't know	135	60.00
6	Can DM person develop lack of sensation in their feet	Yes	150	66.67
		No	25	11.11
		Don't know	50	22.22
7	Can DM person develops foot ulcers	Yes	165	73.33
		No	40	17.78
		Don't know	20	8.89
8	Are you aware that smoking can reduce blood flow in your feet	Yes	36	16.00
		No	26	11.56
		Don't know	163	72.44
9	Which do you think appropriate way of trimming nail	Cutting along the edges	131	58.22
		Cutting straight through	94	41.78
10	People with diabetes should look after their feet because they may not feel minor injury to their feet	Yes	160	71.11
		No	14	6.22
		Don't know	51	22.67
11	Is exercise beneficial for diabetes control	Yes	180	80.00
		No	16	7.11
		Don't know	29	12.89
12	Is dietary modification beneficial for diabetes control	Yes	188	83.56
		No	10	4.44
		Don't know	27	12.00
13	Is quitting smoking and alcohol beneficial	Yes	46	20.44
		No	13	5.78
		Don't know	166	73.78
14	Once controlled, drugs should be stopped	Yes	66	29.33
		No	124	55.11
		Don't know	35	15.56
		Total	**225**	**100**

Majority of participants correctly knew about diabetes, its complications and investigations (73%, 68%, 83% respectively). Around 67 % participants knew there is lack of sensation in foot and 73 % participants said diabetic persons are prone for foot ulcers. 71% said diabetic should inspect feet to notice minor injury. 58% said cutting nail along the edges as correct method of trimming nails. The detail of knowledge of diabetic patients about diabetic foot care is shown in Table 3.

Table 4: Attitude of diabetic patients about diabetic foot care

Sr. no.	Question	Answers	No. of patients(n)	Percentages %
1	Do you think you can lead a normal life if you take appropriate measures for diabetes	Yes	201	89.33
		No	24	10.67
2	Do you believe diabetes can be controlled	Yes	206	91.56
		No	19	8.44
3	Do you think exercise, food and medication can control diabetes	Yes	217	96.44
		No	8	3.56
4	Do you think it is important to consult ophthalmologist	Yes	194	86.22
		No	31	13.78
5	Do you think people with diabetes should take the responsibility of self-foot examination	Yes	186	82.67
		No	39	17.33
6	Are you willing to use special footwear prescribed by your doctor	Yes	175	77.78
		No	50	22.22
Total		**225**		**100**

Majority of participants (89%) believed that it's possible to lead normal life with appropriate measures. Around 83% participants believe

diabetics should take responsibility of self-foot examination and 78% participants are willing to use special footwear prescribed by doctors. The detail of attitude of diabetic patients towards diabetic foot care is shown in Table 4.

Table 5: Practices of diabetic patients about diabetic foot care

Sr. no.	Questions	Answers	No. patients(n)	Percentages %
1	Are you following a controlled and planned diet as advised	Yes	165	73.33
		No	60	26.67
2	When was your blood pressure checked last	One week ago	62	27.56
		One month ago	45	20.00
		Two month ago	76	33.78
		Six month ago	20	8.89
		One year ago	22	9.78
3	Do you test your own blood sugar at home	Yes	12	5.33
		No	213	94.67
4	When did you have your last complete blood investigation done	One month ago	33	14.66
		Six month ago	70	15.11
		One year ago	122	54.22
5	Do you exercise 30 minutes/day	No	126	56.00
		< 3 days in a week	38	16.89
		> 3 days in a week	61	27.11
6	Do you examine/inspect your feet daily	No	102	45.33
		Once a day	45	20.00
		More than once in a day	71	31.56
		4-5 times a week	5	2.22
		Once a week	2	0.89
7	Do you moisturize dry areas of your feet daily	Yes	57	25.33
		No	168	74.66
8	What would you do if you find any abnormality on your feet	Youmanage yourself	80	35.56
		consult a doctor	126	56.00
		Ignore	19	8.44
9	Are your toe nails cut straight through regularly	Yes	189	84.00
		No	36	16.00
10	Do you walk outside barefoot	Often	20	8.89
		Sometimes	16	7.11
		Rarely	18	8.00
		Never	171	76.00
11	How often do you change your footwear	When old footwear aredamaged	201	89.33
		Once in a year	1	0.44
		More than once in a year	23	10.22
12	Do you check your shoes before you put them on	Often	90	40.00
		Sometimes	16	7.11
		Rarely	30	13.33
		Never	89	39.56
	Total		**225**	**100**

Around 73 % participants were following controlled and planned diet. Around 54% participants had their complete blood examination done one year ago. Only 20% participants inspect their feet daily and only 27% participants do exercise for >3 days a week. Around 89% participants changed foot wear only when old one is damaged. The detail of practices of diabetic patients towards diabetic foot care is shown in Table 5.

DISCUSSION

Present study was conducted with the objective to determine the knowledge and practices of diabetic foot care among patients attending Superspeciality hospital of Amravati, Central Maharashtra.

Current study showed majority of participants correctly knew about diabetes, its complications and investigations (73%, 68%, 83% respectively). Around 67 % participants knew there is lack of sensation in foot and 73 % participants said diabetic persons are prone for foot ulcers. Singh et. al. (2013) a study from Central Delhi showed 85% participants had basic knowledge about diabetes. [15] In our study only 42% participants knew correct method of nail cutting. Mulki et. al. (2019) a study from South India showed only 35% knew how to cut their nails correctly. [4] In our study nearly 84% and 80% participants believed that dietary modifications and exercise are beneficial for diabetes control respectively, which is consistent with study by Srivastava et. al. (2015) from rural Karnataka where 76.2% and 67.1%, participants were aware about beneficial effects of dietary modification and exercises in diabetes respectively. [14]

In our study majority of participants (89%) believed that it's possible to lead normal life with appropriate measures. Around 83% participants believed diabetics should take responsibility of self-foot examination. Teli et. al. (2017) a study from Karnataka showed 90.2% participants would positively engage themselves in self-foot care practices. [16] In our study 78% participants were willing to use special footwear prescribed by doctors. Mulki et. al. (2019) a study from South India showed 88.1 % of the population were willing to use specialised footwear if advised by the doctor. [4]

Current study found that around 73 % participants were following controlled and planned diet. Only 30% participants had their routine examination done in last one year which is consistent with study by Singh et. al. from Central Delhi where 81.8% practiced a planned and controlled diet while only 17.2 % of patients have done their routine investigations in last one year. [15] In our study only 20% participants inspected their feet daily and 89% participants changed foot wear only when old one is damaged. George et. al. (2015) study from Southern India showed 71.7% said they inspected their feet once or more a day and 44.3% said they inspected their foot wear each time they wore it. [7]

CONCLUSIONS

This study highlights selected areas of foot care knowledge and practices that are deficient in population with diabetes. Present study infers, overall, there prevails good knowledge and poor practice of diabetic foot care among the patients of diabetic foot. The patients have got good positive attitude but this is not reflecting in their practices. The practices of having planned and controlled diet is good but practices like daily exercise and getting their routine investigation done once a year for early diagnosis of complications is least done. Participants believed that it's possible to lead normal life with appropriate measures and they should take responsibility of self-foot examination. Intensive foot education by a multi-disciplinary preventive team can improve diabetes related foot outcomes. It can be emphasized that by giving proper education, we can improve the attitude and practice of the patients for the care of their feet and thereby improve the prognosis of the diabetic foot.

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DECLARATIONS

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