Original Research Article

Knowledge and Practice Among Type 2 Diabetes Patients from a Village in Guntur District of Andhra Pradesh

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ABSTRACT

Introduction: India has over 32 million Diabetes Mellitus (DM) patients as reported by the WHO. Diabetes in rural India is on the rise due to rapidly changing lifestyles. Once diagnosed with a chronic illness like diabetes the individual needs adequate knowledge for self care.

Aim / Objectives: To evaluate the knowledge and health care practices among type 2 DM patients in a rural community of AP state. Methods and materials: This cross sectional study conducted from January to June 2013 involved all known Type 2 DM patients who visited the NRI Medical College, Rural Health Center (RHC) at Peddaparimi village which is part of the field practice area of the Dept. of Community Medicine.

Statistical analysis: The information obtained was entered in MS Excel, analysed and presented as percentages. Tests of significance like Chi square test were applied where appropriate.

Results: There were 50 male and 68 female diabetes patients with an average duration of illness of 6.9 years. There were 80.5% Hindus, 16.1% Christian and 3.4% Muslim patients. 63% of the patients had none or non specific symptoms at time of diagnosing DM. 28% of males and 17.6% of females felt that they knew enough about DM. Only 38% males and 29.4% females said that they received any education on DM at the time of diagnosis. Among those who received any DM education, an average of 14.6 minutes was spent on educating the patient on DM. 40% of patients had some idea of the foods to be avoided. An overall 26% knowledge was observed. Only 19% were able to list some complications due to DM. Among men a 14% decrease in smokers and 6% decrease in alcohol users was seen. Self monitoring of urine sugar was 9.3% and blood sugar was 6.7%

Conclusions: Massive diabetes education programmes are needed in rural India. Doctors need to spend more time educating their DM patients on important issues like diet, alcohol use, complications of DM, role of exercise etc.

Key words: Diabetes, rural, knowledge, awareness, diet, exercise

INTRODUCTION

According to the WHO India today leads the world with over 32 million diabetic patients and this number is projected to increase to 79.4 million by the year 2030. [1] Diabetes in rural India is rapidly on the rise thanks to changing lifestyles and urbanization. Rural diabetes is set to be

more poignant due to factors such as poorer literacy, financial capacity and poor aptitude to make lifestyle changes. A community based study done in a large rural population in the Godavari region of Andhra Pradesh found the prevalence of diabetes to be 13.2%, of which 6.4% were known and 6.8% were previously undiagnosed. [2] In developing countries the highest increase in diabetes is predicted to occur in the age group of 45 – 64 years which includes people in the peak of their lives thereby creating a huge negative impact on the economy. [3]

Once diagnosed as diabetic the individual needs adequate knowledge, skills and attitudinal changes to bring about healthy modifications to his / her lifestyle like diet, exercise, medication etc. There is also a need for patients to understand the complications of the disease so that they may take necessary precautions. The fact that even among self reported diabetic subjects, knowledge about diabetes including awareness of complications of diabetes was poor indicates that the majority of patients have not been taught about diabetes by their physicians. [4,5]

From the health care provider's point of view, even though the complications of high blood sugar are well known, current diagnosis and treatment protocols for diabetes are unclear. It is difficult to know when and how to alter treatment and a good outcome is not assured. Further, they perceive that there are too many controversies within the academic medical community over how to manage diabetes effectively. [6]

Chow C.K. et al suggest that even in fairly poor rural settings, proven preventive therapies are accessible to many and that strategies to improve detection and treatment rates could produce substantial health benefits. [2] A large number of diabetes patients are not aware of the long term effects of the disease and the need for regular monitoring and diabetic care. Muninarayana C et al found that the common perception about diet in diabetes was to avoid sweets, rice and fruits and to consume more ragi, millet and wheat chapattis. Relevant knowledge about diabetes is poor in rural population. There is a need for community level awareness programs to be organized. Healthcare providers must be aware of community perceptions and practices. [7]

Self management education is the process of providing a diabetic patient the knowledge and skill that is needed to perform self care, manage crises and make life style changes and is the cornerstone of care for all individuals with diabetes who want to achieve successful health-related outcomes. [8] There is a need to establish and implement systems to sustain decision support, self-management education, and delivery system redesign which has a positive influence on practices and patient outcomes in outlying rural communities. [8]

Objectives

- To describe the demographic, socio economic and other parameters that influence diabetes in a village in Guntur District of AP state.
- To evaluate awareness and knowledge about diabetes among type 2 diabetic patients from a rural setting.
- To describe health care practices regarding diabetes amongst rural diabetic patients.

MATERIALS & METHODS

This cross sectional study was done over a period of six months from January to June 2013. All known Type 2 DM patients who visited the NRI Medical College, Rural Health Center (RHC) at Peddaparimi village which is part of the field practice area of the

Dept. of Community Medicine were included. The above patients were visited at their homes and a pretested questionnaire prepared on baseline data like socio economic status, family and personal history, knowledge and practices concerning diabetes, currently followed treatments, complications etc was administered to them after obtaining their informed consent. There were 10 questions pertaining to knowledge and 10 questions pertaining to practices. Scores were prepared for each patient giving equal weightage for all questions. The information obtained was entered in MS Excel, analysed and presented as percentages. Tests of significance like Chi square test were applied where appropriate. Feedback was given to the patients based on identified knowledge and practice gaps and needs.

RESULT AND DISCUSSION

Keeping in view the alarming increase in the incidence and prevalence of diabetes in India, the World Health Organization (WHO) has declared India as the 'Diabetic Capital' of the world. The challenges facing the health care system in India is to first diagnose and manage existing patients followed by decreasing the incidence through the institution of preventive measures in the communities with an emphasis on those at risk.

Demographic data: There were 50 male and 68 female diabetes patients with an average duration of illness of 6.9 years. There were 80.5% Hindus, 16.1% Christian and 3.4% Muslim patients. There seemed to be a higher prevalence of diabetes in women from the Christian religion. The highest numbers of diabetics were seen in the 40 to 59 years age groups. (Table 1) More women from schedule caste were diabetic. Looking into family history of diabetes, 27 of the patients have history of diabetes in their parents (father 15 and mother 12). 9 gave family history of diabetes in siblings (brothers 8 and sisters 1). 19 gave family history of diabetes in children (sons 11 and daughters 8). Only 37% of the patients had any symptoms specific for diabetes like polyuria, polydipsia, and polyphagia, tingling or burning sensation in legs, foot ulcers, non healing wounds etc. at the time of diagnosis.

In this study 48 patients were illiterate while 41 had just attended primary school. Illiteracy amongst female patients was 42.6% (Table 1).Shah V.N et al in their study found that only 10% of the diabetics were graduates and nearly 37% were completely illiterate thereby suggesting that illiteracy may be the most important obstacle in diabetes management. [10]

S.No	Variables	Males (n=50)	Females (n=68)	Chi Square	p value
Table 1: Comparing demographic and other data between genders					
1	Age < 50 years	35	59	5.0	0.02
2	Age at diagnosis of DM <39 years	4	14	4.21	0.04
3	High School and above education	11	3	8.52	0.003
4	Patients from Christian Religion	3	16	6.55	0.01
5	Caste SC and ST	8	18	1.84	0.18
6	Duration of DM >6 years	17	34	3.01	0.08
7	Unemployed status	10	50	33.03	0.00001
8	Having associated diseases	12	33	7.35	0.006

Diabetic patients must be given enough knowledge and skills to be able to manage their own illness. At the time of

diagnosis, substantial efforts must be made to teach the patient some basic facts about the disease, its control measures and its

complications. Shah V.N found that most of the physicians interviewed by them could spare very limited time for their patients and a search for complications was ignored by most. [10]

31 male (62%) and 40 (58.8%) female patients were diagnosed by MBBS Private Practitioners while the rest were diagnosed by higher specialties and institutions. This shows that most rural diabetic patients are being diagnosed at the periphery by under graduate doctors rather than diabetologists or endocrinologists. Gupta V. et al suggest that every fifth patient visiting a consulting physician is a diabetic and every seventh patient visiting a family physician is a diabetic. [11]

Among men only a 14% decrease in smokers and 6% decrease in alcohol users were seen. A large number were not involved in any daily exercise regime. Badruddin M et al found that sixty seven percent of the patients in their study did not do exercise of any kind. The overall awareness about the risk of complications was satisfactory but the misconceptions regarding diet, insulin and diabetes were quite common. This study highlights the need for better health information to the patient through large scale awareness programmes so as to change the attitude of our public regarding diabetes. [11]

Awareness on Diabetes:

Gulabani M et al in their study found that only 52 (51.5%) patients actually knew the symptoms of hypoglycemia. However, 77 (76.2%) patients knew that they should consume sweets if they had experienced an episode of hypoglycemia. This shows that the knowledge of diabetes in patients is only partial and that most patients may not be able to take appropriate corrective measures sufficiently early and may seek medical aid only at very late stages. [13]

In this study only 38% males and 29.4% females said that they received any education on DM at the time of diagnosis. Among those who received any education, an average of 14.6 minutes was spent on educating the patient on DM. Of these, 67.6% (28% males and 17.6% females) felt that they knew enough about DM to care for themselves. All the patients who did not receive any educational inputs said that they did not know enough (Chi square 25.2 p value 0.000005). Looking at the duration of education and the patients feeling that he/she knew enough about Dm, 10 of the 21 who just received 5 minutes input felt that they knew enough. All the patients who received more than 5 minutes of education felt that they knew enough (Chi square 9.55, p value 0.002 Yates corrected). There was no significant relationship between literacy levels or gender of the patients and their feeling of knowing enough about the disease. 40% of patients had some idea of the foods to be avoided. An overall 26% knowledge was observed. Only 19% were able to list some complications due to diabetes. Self monitoring of urine sugar was 9.3% and blood sugar was 6.7%

Because diabetes is mostly a self-managed disease, patients are more than passive recipients of medical expertise and sound patient-physician collaboration is to be developed for controlling DM on the basis of trust and understanding of every client's other facets of life. [14] Gulabani et al suggest that patients' knowledge regarding the treatment and complications of diabetes showed serious deficits; more so among women, even though most had been diabetic for years. [13]

Overall Knowledge scores ranged from 0 to 10 (average of 3.74, Mean 3 and mode 1). In women a score of >5 (out of a possible 10) was seen in 29.4% and in men 22%. Only 23% had a clear understanding of what is diabetes. 19% were able to list some complications of diabetes and 20%

were able explain what is hypoglycemia.   (Table 2)

S.No	Awareness Questions	Males (50)	%	Females (68)	%	Total (118)	%
	Table 2 - Awareness related questions on Diabetes Mellitus						
1	Able to adequately explain what is Diabetes	14	28	13	19	27	23
2	Has heard of insulin	23	46	24	35	47	40
3	Aware that Diabetes is increasing in the communities	39	78	54	79	93	79
4	Able to list some factors contributing to Diabetes	26	52	26	38	52	44
5	Aware that Diabetes causes complications	18	36	18	26	36	31
6	Able to list some of the complications	11	22	12	18	23	19
7	Knows the normal blood sugar levels	25	50	24	35	49	42
8	Able to explain what is hypoglycemia	13	26	11	16	24	20
9	Understands the importance of exercise	22	44	23	34	45	38
10	Able to list some foods to be avoided in Diabetes	20	40	27	40	47	40

Overall Practice related scores ranged from 0 to 8 (Average 3.7, Median 4 and mode 4). Scores of >5 were seen in only 12% males and 13.2% females. The scores were not associated with gender, literacy or duration of illness. Upadyay D et al also found similar low KAP scores in patients and suggested the need for educational interventions to improve the knowledge,

attitude and practices of the diabetes patients. [15] Among those studied there is regular doctor visitation and blood sugar checking. In spite of this regular contact with the health system awareness remains poor, This again brings the onus on the health system which is not taking much effort to improve the patient's knowledge and practice concerning DM. (table 3)

S.No	Practice issues	Males (50)	%	Females (68)	%	Total % (n=118)
	Table 3: Practice related questions concerning Diabetes					
1	Gets Blood Sugar checked regularly	43	86.0	58	85.3	85.6
2	Has Doctor checkup regularly	44	88.0	55	80.9	84.4
3	Drugs changed when necessary	19	38.0	30	44.1	41.1
4	Recognizes side effects of drugs	6	12.0	6	8.8	10.4
5	Recognizes a hypoglycemic attack	11	22.0	25	36.8	29.4
6	Checks own Blood Sugar	4	8.0	4	5.9	6.9
7	Checks own Urine Sugar	6	12.0	5	7.4	9.7
8	Exercises at least 15 minutes each day	5	10.0	12	17.6	13.8
9	Takes special foods for diabetes control	6	12.0	15	22.1	17.0
10	Avoids certain foods	32	64.0	48	70.6	67.3

Foods avoided by some patients were Sugar, sweets, tubers, fruits and rice. Special foods taken have been listed as chapathi, green leafy vegetables, jowar and ragi.

It is essential to dedicate an appropriate amount of time to achieve improved patient counseling. The amount of time spent generally depends on factors such as a patient's interest, the number of medications needed, the seriousness of the patient's condition, and the pharmacist's work schedule. Lack of time is one of the barriers to providing counseling. [16]

CONCLUSION

The study reveals that while knowledge about diabetes is poor, practices are even poorer. Patients are going regularly to doctors for checkups. While blood sugars are being checked, not much education is being given. Very few understand the role of exercise and the number of those who exercise regularly is very low. From the patient's point of view, cognitive, affective and psychomotor inputs to change the knowledge, attitudes and practices of diagnosed diabetic patients are needed.

Diabetes is a lifelong condition and patients have to be encouraged to have sufficient knowledge and skills to practice self care. To achieve the complex target of diabetes control, persistent motivation on the part of the patients is a critical issue. Care of a chronic disease patient is essentially singular and requires a special vision. The patient-physician relationship must be redefined to an empowering one.

Novel treatment and teaching programs for diabetic patients in general practice have shown good results in terms of blood sugar levels and other parameters as evidenced by studies such as that of T.R. Pieber et al. [17] Massive diabetes education programmes are urgently needed both in urban and rural India. Diabetes being a life-long disorder is an expensive ailment for many patients in developing societies, the financial burden often being shared by relatives of the patients putting a stress on the family's financial resources. [18] There is an urgent need for lifestyle intervention, with the incorporation of a healthy diet, an increase in physical activity and weight reduction. [19] Implementing systems for decision support, self-management education, better health care delivery etc will have a positive influence on practices and patient outcomes in outlying rural communities.

It is imperative to help health care professionals to make the shift from an acute to a chronic model of medical care and from the role of primary decision maker to that of teacher and facilitator. Primary care providers, not only specialists, need to be targeted in educational interventions, since they provide the majority of care for patients with type 2 diabetes. Continuing Medical Education that addresses attitudes in addition to knowledge is likely to be more effective in changing practice behaviors and improving diabetic outcomes. [6]

Recommendations

There is a need for medical practitioners to spend more time educating their diabetic patients on important issues like diet, alcohol use, complications, role of exercise etc. Comprehensive treatment and teaching programmes for Type 2 diabetic patients aiming at good results in terms of blood sugar levels and other parameters is needed in rural areas.

ACKNOWLEDGEMENTS

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