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Diabetic knowledge of rural community and drug utilization pattern in a tertiary care hosptial

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Abstract

Diabetes mellitus (DM) is an important public health problem in developed countries and increasingly also in developing countries. It is a highly prevalent condition affecting an estimated 171 million worldwide. Diabetic knowledge and skills to make adjustment to daily management of medication, meal plan, exercise and other factor that impact on blood glucose. The aim of study to investigate the drug utilization pattern, knowledge, attitude, and practice of diabetic patients in rural community of India. We collected data from 300 patients who were admitted in inpatient service. It is an 1210 bedded teaching hospital situated at Annamalai University, Tamilnadu. The subject who had willing to participate was enrolled on the basis of inclusion and exclusion criteria. The result shows that most predominant age group was found to be 51-60years n=112 (37.3%). Whereas duration of diabetes were found to be 6-10 years n=96 (32%). The knowledge about primary symptoms shows that 62 % knew none of them and 38% subject's at least one. The most prescribed drug was glimepride alone or in combination 50.66% and 37.33% respectively. Our article concludes that need to intensify diabetes to produce compliance to self monitoring and diabetes treatment regimen in a rural community of India.

Key-Words: Awareness, Blood glucose, Diabetes, Education, Therapeutic

Introduction

India is a developing country the diabetes mellitus is a major clinical and public health problem. The prevalence of type2 diabetes mellitus is major among Indian individuals[1]. Diabetes mellitus is a chronic incurable condition caused by inheriditary and/ are acquired deficiency in production of insulin. Diabetes mellitus is a highly prevalent condition affecting an estimated 171 million individual worldwide. While the etiology of type 1 and type 2 is different, in both cases the disease process results in chronically elevated blood glucose level or hyperglycemia. Diabetes is a metabolic syndrome characterized by inappropriate high blood glucose result in the form of either low level of insulin or in the form of abnormal resistance to insulin effect coupled with inadequate level of insulin secretion to compensate[2]. The characteristic symptoms are excessive urine production (polyuria), increased thirst and increased fluid intake (polydipsia) and blurred vision).

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This symptoms are likely to be absent if the blood glucose is only mildly elevated[3] . The stabilization of blood glucose is a primary goal of diabetes management yet is a challenging an influenced by a number of factors.

It is partly dependent on carrying out of number of different self care behavior that make up a complex management regimen involving exercise dietary modification , food care, self monitoring of blood glucose and administration of medication[4]. Additionally in all patients where type 1 diabetes mellitus and some with type 2 diabetes mellitus insulin therapy is necessary[5]. However various authors emphasized the limitation of selecting knowledge change alone as the criterion for success in diabetes mellitus education program[6-8] or as a criterion for a successful long term adjustment to diabetes[9].

Diabetes self management education has been recognized as a fundamental components of diabetes care. It occurs in a person with a diabetes acquires adequate knowledge and skills to make adjustment to daily management of medication, meal plan, exercise and other factor that impact on blood glucose[10]. The aim of study to investigate the drug utilization pattern, knowledge, attitude, and practice of diabetic patients in

rural community of Chidambaram, Cuddalore district, Tamilnadu, India.

Material and Methods

Settings and design

We sought to describe demographics, knowledge about awareness and self reported risk factor for diabetes by administering a survey questionnaire among the adolescent attending diabetic clinic. The study was carried out in the diabetic clinic at Rajah Muthaiah Medical College and Hospital. 1210 bedded teaching hospital situated in Annamalai University, Chidambaram, Cuddalore district, Tamilnadu, India.

Duration of study

The duration of study was six months (Nov 2005 – Apr 2006). The study was approved by the Annamalai Institution review board on oral written concern was obtained from the patients before that participated in the study.

Study population

The present study was conducted on 300 patients, who admitted to IP department of diabetic clinic, during the six months of period. The subjects who are willing to participate were enrolled on the basis of inclusion and exclusion criteria. The patient baseline characteristic such as age, sex, occupation, duration of diabetes, marital status, level of education and clinical characteristics.

Inclusion criteria

Patients with diabetic and other co-morbid condition like hypertension, stroke, tuberculosis and arthritis.

Exclusion criteria

Mental retardation, unconsciousness, drug addiction and pregnant women

Literature survey

The literature supporting study was collected and analyzed, the different sources used to collect the literature where, Micromedex, drug information service and various websites such as www.pubmed.com, www.sciencedirect.com and DOAJ.

Data collection

All the data collected from the case sheet and transfer to data entry format for evaluation in endocrinology department.

Data analysis and interpretation

The collected data were analyzed for their appropriateness and suitability, the interpretation was made for collected data.

Parameter for evaluations

The present study followed on WHO indicators, in addition to some others indicators. The parameters include gender distribution, average age of patients, duration of diabetes, types of drugs prescribed, marital status, education status, and comorbid condition.

Results and Conclusion

The demographic characteristic of the study sample of 300 diabetic patients indicated that the male population were found to be predominantly having diabetes n=172 (57.33%). When compared to female population which is only n=128 (42.66%). The result showed that more number of patients were between 21 –80 years, followed by number of patients under n=300. The most predominant age group was found to be 51-60yrs n=112 (37.3%). The duration of diabetes were found to be 6-10yrs n=96 (32%). The detailed results were shown in the table-1.

Our result showed that persons having family history of diabetes were found to be 21 % and vice versa. The knowledge about primary symptoms shows that 62% knew none of them and 38% subjects at least knew one, consisting 36.2% and 7.8% knew frequent urination and weakness respectively as the most and least primary symptom of diabetes. The comorbidities were found to be hypertension, stroke and arthritis with 8.33%, 2.66% and 3.33% respectively. Of the 3 early complications were asked, that 61% of patients knew none of them and 39% of patients at least knew one.

Approximately 72% of patients told that hyperglycemia can be early complications of diabetes. 2/3rd of patients 68% does not knew cardiovascular complications as a late complication. Approximately 93 % of patients do not know diabetes is an incurable condition. The most prescribed drug was glimepiride alone or in combination with 50.66% and 37.33% respectively. Other major categories of drugs were shown in the table 2.

In addition to that diet related questionnaire asked, the survey said that 67% individual have very poor awareness about the diet. The most mentioned diet that subject counted as causes of diabetes were not known 70%. The awareness about sports, increased physical activity, site of insulin injection administration and storage conditions of insulin were also assessed and results reveals 12% knew none of them, 20% do not knew about exercise, 18% do not knew about insulin injection site and 21% don't know about storage conditions. The information source 54% of subject was community based (22.3% were woman and 31.7% were man). 20% radio and TV programs, 16% physicians, 6% study of medical books, magazines and news paper, 4% are from other sources.

Substantial research and education input is denoted to the measurement of knowledge as on indicator of the success of diabetic education[11]. Compliance to diabetes treatment regimen and behavioral change, important prerequisite to effective diabetes self management education are largely affected by the diabetic persons knowledge[12]. In the present study we evaluated the

patient knowledge about diabetes and its management. Our result findings were contrast to the study done in Chennai adult population where female patients were found to be more than males[13]. The mean age of the study population was 49.5 ± 8.9 yrs. This was less compared to the study findings[14]. In this study family history of patients having diabetes was also assessed, and surprisingly findings shows that least no. of patients was having the family history of diabetes which was contrast to study done in Kuwait population[15]. There is a continuous increase in sedentary life style accustomed by south Indian population which results in more number of diabetic patients. The evidence for the effects of physical inactivity on the prevalence of diabetes and cardiovascular diseases can be seen in Chennai urban population study[16, 17]. The most prescribed drug was glimepiride alone or in combination with 50.66% and 37.33% respectively. In Addition to that 62% of patients know none of the primary symptom and this was similar to the study done in Iran population[18] where more than 50% of study population knew none of the primary symptoms of diabetes. As for diabetic related approximately 61 % and 68% of patients knew none of the early and late complications of diabetes. One of the early complications of diabetes is hyperglycemia and 72 % of patients knew about it. None of them are aware about erectile dysfunction is also complication of diabetes. This finding shows the need to address and imitate the patient counseling. Emphasize must be given more about disease management. In the present study 67% of individuals have unaware of diet modification in diabetes. Considering the effectiveness of lifestyle and dietary modification to prevent or delay diabetes, the current findings suggest a need for nutrition education in intervention in the study population. The awareness about sports, increased physical activity, and site of insulin injection was very low and insufficient. It was observed that the prevalence of diabetes was almost three times higher in individuals with light physical activity compared to those having heavy physical activity[16]. In the study population the awareness about the importance and the role of life style modifications in diabetes should be created which can be done by issuing the pamphlets and conducting health camps in the rural areas where the awareness was very low. Information of source about diabetes in our present study shows only 16% of them know from physician and these findings addresses the importance of counseling and also pharmacist intervention.

The level of diabetes knowledge among the study population was poor especially about the disease management and life style modification. Awareness of the major determinants will also help health care providers to focus their resources and to develop strategies to assist the patients of limited education to manage the diabetes. There is a need to intensify diabetes knowledge and influence attitudes and practices to produce compliance to self-monitoring and diabetes treatment regimen. The present study highlights the importance of evaluating diabetes knowledge attitudes, and practices as crucial means to understand their problems so that we can counter it efficiently.

Table 1: Social demographic of diabetic patient

Variable	No. of patients (n=300)	Percentage
Sex		
Male	172	57.33
Female	128	42.66
Family history		
Yes	126	42
No	174	58
Age group (yrs)		
21-30	18	6
31-40	32	11
41-50	78	26
51-60	112	37
61-70	52	17
71-80	08	3
Marital status		
Married	182	61
Unmarried	118	39
Duration of diabetes (yrs)		
0-1	38	13
3-5	68	22
6-10	96	32
11-15	71	23
16-20	27	09
Educational attainment		
Illiterate	133	44.33
Elementary school level	77	25.66
High school level	50	16.66
College Graduate	40	13.33
Co-morbidities	25	8.33
Hypertension	8	2.66
Stroke	2	0.66
Tuberculosis	10	3.33
Arthritis		

Table 2: Drugs prescribed in tertiary care hospital

Name of the drugs	No. of patients	Percentage
Glimepiride	152	50.66
Insulin	24	8%
Glimepiride + Metformin	92	30.66
Glimepiride + Insulin	22	7.33
Pioglitazone + Insulin	10	3.33
Antihypertensive agents	48	16
Antibiotics	12	4
NSAIDS	30	10
Antiemetic's	06	2
Vitamins	160	53.33
Antiulcers	30	10
Antipyretics	12	4
Hematinic	06	2
Anti tubercular	12	4
Antihistamines	06	2

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References

1. Vijayakumar S., Sasikala M., Mohammed Saleem T.S. and Gauthaman K. (2008). Prevalence of diabetes in Sikkim and Darjeeling district of west Bengal and role of risk factor associated with it- A preliminary survey. *IJCP*, **I (3)**:36-40.
2. Wild S., Roglic G., Green A., Sicree R. and King H. (2004). Global prevalence of diabetes: estimates for the year 2000 and projection for 2030. *Diabetes Care*, 27: 1047-53.
3. Dipro J.T., Talbert R.I., Yee G.C., Mateke G.R., Well B.G. and Posey L. (2008). *Pharmacotherapy - A Pathophysiologic Approach*. 7thed. Newyork; MC Graw Hill, Medical Publishing Division, 1210- 1211.
4. Williams G. and Pickup Jc. (2005). *Hand Book Of Diabetes,* UK, Blackwell publishing.
5. Schoenfeld E.R., Greene J.M., Wu S. and Leske M.C. (2001). Patterns of adherence to diabetic vision care guidelines; baseline findings from the diabetic. Retinopathy Awareness Program Ophthalmology,108: 563-71.
6. Graber A.L., Christman B.G., Alogna M.T. and Davidson J.K. (1984). Evaluation of diabetes education programs. *Diabetes*, **26**:61-64.
7. Davis W.K., Hull A.L. and Boutaugh M.C. (1981). Factor affecting educational diagnosis of diabetic patient. *Diabetes care*, **4**: 275-278.
8. Dunn S.M., Bryson J.M., Hoskin P.L., Alford J.B., Handelsman D.J. and Turtle J.R. (1984). Development of the DKN (diabetes knowledge) scales; Form DKNA, DKNS, DKNC. *Diabetes care*, **7**: 36-41.
9. Geller J. and Butler K. (1981). Study of educational deficits as the causes of hospital admission for diabetes mellitus in a community hospital. *Diabetes care*, **4**: 487-89.
10. Belton A. (2003). International standard for diabetes education for IDF consulatative section on diabetes education.
11. Beeney L.J. and Dunn S.M. (1990). Knowledge improvement and metabolic control in diabetes education: Approaching the limits. *Patient Education and Counseling*, **16**: 217 -229.
12. Gregory Joseph Ryan A., Ardena, Elizabeth Paz-Pacheco. and Cecila A. Jimeno. (2010). Knowledge, attitudes and practices of persons with type-2 diabetes in a rural community: Phase I of the community-based diabetes Self-management Education (DSME) Program in San Juan, Batangas, Philippines. *Diab Res Clin Pract.*
13. Murugesan N. (2007). Awareness about diabetes and its complications in the general and diabetic population in a city in southern India. *Diabetes Research and Clinical Practice*, **77**: 433- 437.
14. Presell S.D. (2004). Relationship of diabetes specific knowledge to self-management activities ambulatory preventive care, and metabolic outcomes. *Preventive Medicine*, 39: 746-752.
15. Al-Adsani A.M.S., Moussa M.A.A. and Al-Jasem L.I. (2009). The level and determinants of diabetes knowledge in Kuwait adults with

type 2 diabetes. *Diabetes & Metabolism*, **35**: 121-128.

16. Mohan V., Shanthirani C.S. and Deepa R. (2003). Glucose Intolerance in a selected south indian population with special reference to family history, obesity and life style factors- the Chennai urban population study. *J. Assoc. Physicians India*, **51**: 771-7
17. Mohan V., Gokulakrishnan K., Deepa R., Shanthirani C.S. and Datta M. (2005). Association of physical inactivity with components of metabolic syndrome and coronary artery diseases: The chennai Urban Population Population Study. *Diabet Med*, **22**: 1206-11.
18. Ali Reza Soltanian, Fatemeh Bahreini and Mohammad Afkhami-Ardekani (2007). People awareness about diabetes disease and its complications among aged 18 years and older in Bushehr Port inhabitants (Iran).Diabetes & Metabolic Syndrome. *Clinical Research & Reviews*, **1**: 245 -249.