

A STUDY TO ASSESS THE KNOWLEDGE AND PRACTICE OF INSULIN SELF-ADMINISTRATION AMONG PATIENTS WITH DIABETES MELLITUS

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ABSTRACT

Diabetes mellitus (DM) is recognized as one of the leading cause of death and disability worldwide, India is in leading position with largest number of Diabetics. The physical, social and economic factors involved in the occurrence and management of diabetes. As per the surveillance of World Health Organization (WHO), it is expected that approximately 60 million people by the year 2017 and 80 million people by 2030 in India and 366 million people in the world by 2030 will be affected by Diabetes mellitus. Knowledge about DM is a prerequisite for individuals and communities for its prevention and control. The present study was carried out to assess the knowledge and practice regarding Insulin Self-Administration (ISA) with selected demographic variables. The research design selected for the study was non experimental descriptive design with semi structured interview schedule. Sixty diabetic patients under ISA were considered as a sample for the study. Study was conducted at Diabetic Clinic in Devaraj Urs Medical College & Hospital and Research Centre of Sri Devaraj Urs Academy of Higher Education & Research under Sri Devaraj Urs University, Tamaka, Kolar. The results of the study revealed that the patients on insulin did not have adequate knowledge, practice and skill on ISA and there was a positive correlation between knowledge and practice of ISA. It is concluded that the education is likely to be effective when the characteristics of the patients in terms of their knowledge, attitude and practices about self care management are known. Therefore, it is of paramount importance, that people with diabetes mellitus should be provided with ongoing high quality need based education to be delivered by skilled health care provider (HCP).

Keywords: Diabetes Mellitus; insulin self administration; demographic variables; self care management.

INTRODUCTION

“Insulin is a valuable Drug for those who are in need of it- Insulin will have tremendous impact, when it is used properly”

The term diabetes mellitus (DM) describes a metabolic disorder of multiple etiological factors characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action or both^{1,2}. People with diabetes are at increased risk of cardiovascular, peripheral vascular and cerebrovascular disease^{1,3}. Many of these complications can be prevented with appropriate timely medical care^{4,5}. This care, however, in addition to medications, often requires significant alterations in lifestyle, (exercise and food) and strict adherence to self-care tasks, such as checking urine/blood sugars at regular intervals to obtain good control of the disease⁶.

Diabetes can occur at any age. Type 2 diabetes is most common after middle age and occurs most often at 50-70 years of age, affecting both sexes equally⁷. The peak incidence of Type 1 diabetes is at 10-12 years with a small male predominance. Nevertheless, elderly people can also have Type 1 diabetes and some children have Type 2 diabetes⁸. Diabetes is a global public health problem, a chronic disease and is now growing as an epidemic in both developed and developing countries⁹. DM is recognized as one of the leading cause of death and disability worldwide¹⁰. The physical, social and economic factors involved in the management of diabetes are a continuous strain for health sector as well as to Government Agencies. Decision Resources, one of the world's leading research and advisory firms focusing on pharmaceutical and healthcare issues finds that the prevalence of Type 2 Diabetes in India is among the highest in the world with more than 28 million cases in 2007 and it will grow more rapidly in India than in any other developing or developed nation and WHO also expected that approximately 366 million people in the world by the year 2030¹¹; 60 million cases by 2017¹² and 80 million cases by 2030 will be affected by DM in India alone¹³ [Figure 1].

The prevalence of diabetes is higher in men than women, but there are more women with diabetes than men. The urban population in developing countries is projected to double between 2000 and 2030. The most important demographic change to diabetes prevalence across the world appears to be the increase in the proportion of people with greater than or equal to 65 years of age¹⁴.

Knowledge about DM is a prerequisite for individuals and communities to take action for control the diabetes¹⁵. The treatment for DM includes administration of Oral Hypoglycemic agents and injectable Insulin therapy along with life style modifications. The insulin therapy requires coordination and understanding of both the individual with diabetes and those responsible for diabetic care. There is no definite insulin dose that works well for every individual, the dosage of insulin changes based on patient's blood glucose levels and the type of insulin used. Therefore, insulin treatment must be individualized to fit the life style of the individual and metabolism of individual with diabetes. The changes and modifications are made as needed throughout the life of individual with diabetes¹⁶.

Information and Education gives consequent improvements in knowledge, attitudes and skills which leads to better control of the disease and is widely accepted to be an integral part of comprehensive diabetes care¹⁵. Patient education has been proven to be an effective method in management of prevailing health problem¹⁷. More emphasis should be given to the standardization and improvement of ISA technique, focusing on proper teaching of those techniques, the people to become more aware of their responsibility and make less mistakes during Insulin administration¹⁸. Since, the treatment of diabetes continues for lifetime, there is a need to monitor the knowledge, understanding and competency level of clients in relation to their disease process and its management¹⁹.

Research Studies have conducted in different parts of the world showed the evidence of inadequate knowledge and poor practice level on ISA among DM patients²⁰⁻²¹. It was proved that there is an increasing amount of evidence that the patient education is the most effective way to lessen the complications of diabetes and its better management²². Investigator of earlier studies was perceived that knowledge of diabetics on self care management needed to be strengthened.

With this view, the present study was carried out to assess the knowledge levels of diabetic patients on diabetes and ISA; to evaluate their practice skills of ISA; to determine the association of knowledge and practice with selected demographic variables and relation of its findings; to scrutinize the most common incorrect and correct procedures in the ISA technique and to establish the professional responsibility in providing instructions on how to self-administer insulin.

Prevalence of diabetes

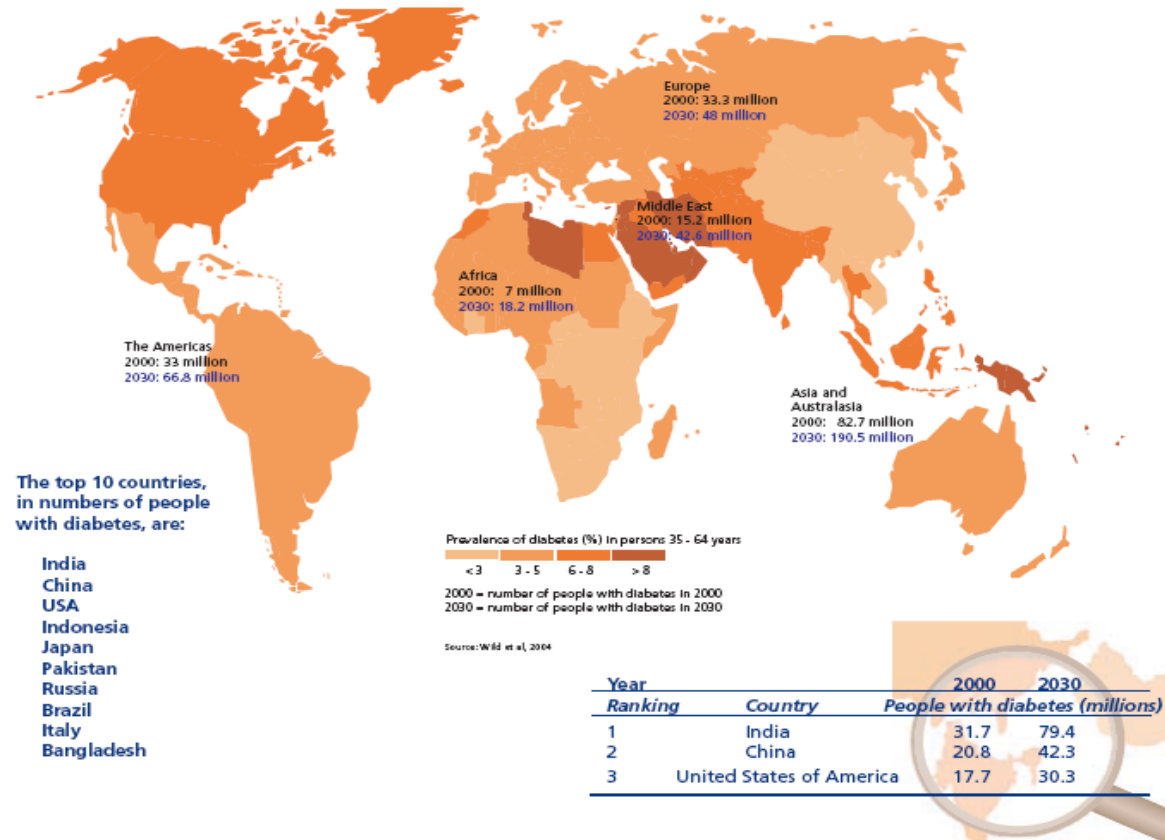


Figure 1: Estimated Prevalence of Diabetes mellitus in Selected Countries in 2000 by WHO¹³
Courtesy: Prevalence of Diabetes, Source Wild et al. 2004.

MATERIALS AND METHODS

The study was based on the modified Rosenstocks Health Belief Model. The research approach used was quantitative with the non experimental descriptive design. The study was conducted in Diabetic Clinic at Sri.Devaraj Urs Medical College and Hospital of Sri Devaraj Urs Academy of Higher Education & Research under Sri Devaraj Urs University, Tamaka, Kolar

Diabetic patients on ISA were considered as a sample for the study. Sixty subjects were selected through convenient sampling. Data collection was done using semi structured interview schedule, which consisted of three parts. These include:

Section. I

Socio demographic variables which comprises of age, sex, religion, education, occupation income, type of family, family history of diabetes mellitus, duration of illness, and duration of insulin therapy.

Section.II

Semi structured questionnaire to assess the knowledge on self insulin administration.

Section.III

Semi structured questionnaire to assess the practice on ISA.

Knowledge and practice were arbitrarily classified as given below based on percentage of scores obtained:

- <50% : Inadequate knowledge / Poor practice
- 51-75% : Moderately adequate knowledge / Fair practice.
- >75% : Adequate knowledge / Good practice.

The tools were translated in vernacular Kannada, Telugu and Tamil languages since, most of the patients seeking care in the study setting spoke all the three languages because this

Research Centre in Karnataka State is border area to Andhra Pradesh and Tamilnadu States. Reliability of the tool was assessed by split half technique and the reliability obtained was ($r=0.98$). The validity of the tool was obtained from Diabetology and Nursing Departments of Sri.Devaraj Urs Medical College & Hospital of Sri Devaraj Urs Academy of Higher Education & Research Centre. The study commenced after obtaining administrative permission. The purpose of the study was explained to the subjects by the researchers, and the interview was conducted among those willing to participate in the study. The collected data were analyzed and organized according to the objectives of the study using descriptive and inferential statistics.

RESULTS

Findings of knowledge regarding ISA among diabetic patients

Knowledge assessment on self insulin administration revealed that 41 (68%) of the subjects had inadequate knowledge; and remaining 19 (32%) of them had moderately adequate knowledge. None of them had adequate knowledge. The overall mean score percentage of the knowledge was 46.9 (± 3.98)%.

Findings of practice regarding ISA among diabetic patients

Assessment of the practice regarding ISA revealed that 43 (72%) of the subjects had poor practice; 17 (28%) of them had fair practice, and none of them had good practice. The overall mean score percentage of practice on ISA was 46.8 (± 2.18)%.

Findings related to relationship between knowledge and practice regarding ISA

There was a statistically significant positive correlation between knowledge and practice on ISA (" r " = 0.62; $p < 0.05$).

Chi-square analysis was used to find out the association between knowledge and practice on ISA with socio demographic variables. Results showed that there was a significant association between knowledge and duration of insulin treatment at the level of ($p < 0.05$) and the practice of ISA was significantly associated with age, type of family, duration of diabetes and duration of insulin treatment at the level of $p < 0.05$.

DISCUSSION

The study findings showed inadequate knowledge and poor practice level. Lack of knowledge regarding these may result in development of diabetic and insulin related complications. Knowledge levels of patients on ISA was influenced by the duration of ISA was ($p < 0.05$). This shows that long duration of ISA may possibly be enhance knowledge levels of the patient regarding it. It is possible as the time immense, there could be more chances of exposure to information which helps the patients to acquire the knowledge which ultimately improve their practice skills.

Many studies also had shown that diabetic patients had poor level of knowledge about the disease and self care management [23,24]. Similarly most patients on self insulin were not aware of the complications of insulin and its management. Hence, there is a need to intensify knowledge on diabetes and its self care management to produce compliance on diabetes treatment regimen.

Knowledge could be enhanced through many ways. A booklet with pictorial illustrations could be given to the patient that contains information on types of insulin with their color code, sites of insulin administration, techniques of insulin administration, storage of insulin, signs of hypoglycemia and hyperglycemia, complications of insulin and its management. This might help the patients to have better understanding about self insulin administration and also improve their practice skills.

Implications

As knowledge is a power resource for practice, health care providers (HCP) need to take an active role. in designing instructional material for their clientele, which linked with practice for better diabetic control. This will enable the HCP in clinical setting to empower patients through increased knowledge and confidence in self management abilities. This study revealed that overall knowledge and practice of the subjects regarding ISA and its management were poor. Hence, further studies need to be conducted to explore the needs of the diabetic patients on various self care aspects of the diabetes. HCP need to recognize the unique role that they could play in developing the capacities of patients on self care management.

Recommendations

- The study can be replicated on a larger sample, there by findings can be generalized to a larger population.
- A true experimental study can be conducted with structured teaching programme regarding knowledge and practice of ISA.
- Mass and individual education in vernacular language to educate the patients can be organized.
- Teaching programme can be conducted in diabetes clinics regarding insulin and its administration.

CONCLUSION

Diabetes imposes lifelong threats on the individuals and their families. This study showed that there was inadequate knowledge and poor practice skills among the patients regarding diabetes and self insulin therapy. In addition, study findings had revealed that there is an immense need for education on self-care management. Outcomes are largely based on the patient's decisions they make on self-management. Therefore, it can be concluded that people with diabetes should receive ongoing need based quality diabetic education by using innovative methods that is tailored to their needs delivered by skilled HCP.

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