

Knowledge and Awareness of Insulin Usage among Diabetic Patients in Chennai

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Abstract: ***Aim and Objective:** The aim of this study is to assess and evaluate the knowledge of insulin in diabetic patients and establish awareness about insulin. **Methodology:** A pretested questionnaire consisting of 23 questions were framed based on the knowledge and awareness of insulin and were sent through online communication system (Whatsapp) with attached link to the online questionnaire (<http://surveyplanet.com/586530bbf46b72049e627266>). It was totally sent to 120 participants. **Result:** 16% of the responders were unaware about the normal blood sugar level. About 51% of the study population do not get the post meal sugar check on a regular basis. 28% miss their insulin doses often and about 37% never got a eye check-up done. About insulin self administering, 18% are not confident. 61% of the responders are unaware of the insulin therapeutic uses for gestation diabetes and about 49% think that insulin is safer than oral hypoglycaemic agents. **Conclusion:** Our study shows that majority of the responders had misconceptions regarding usage of insulin. Most of them were careless and were not confident in self administering of insulin. Hence, proper education and awareness programmes must be planned to educate people on proper directions and attitude towards insulin in order to avoid unnecessary complications.*

Keywords: insulin; diabetic patients; diabetes mellitus; kap survey

1. Introduction

India is rapidly emerging as the diabetes capital of the world. Currently, there are approximately 63 million diabetics in India, [1] second only to China, and this figure is likely to increase substantially by 2025. [2] Insulin is mandatory for type 1 diabetes and is frequently required in type 2 diabetes as the disease progresses. Statistics from developed countries show that more than 30% of all diabetics use insulin either singly or in combination with oral anti-diabetic drugs (OADs), [3] though this figure may be lower for India. [4] Inadequate knowledge regarding insulin is likely to influence its acceptance and adherence. Being an injectable drug, its use is more likely to be influenced by misconceptions than OADs. Fruits and vegetables are an important part of the human diet and a major source of biologically active substances such as vitamins and secondary metabolites. As per the studies on diabetic patients, health practitioners prefer including more amount of fibre rich fruits in their diet. These fruits with low sugar concentration help in controlling blood sugar level to a maximum extent. Moreover, intake of fibre rich fruits helps in maintaining cholesterol level which in turn normalizes the metabolic rate of the body.[5] There are several Indian studies with emphasis on diabetes epidemiology [6-8] but ones related to knowledge-attitude-practice (KAP) survey in diabetics are limited. [9-11] A large proportion of type 2 diabetics also eventually require insulin for blood sugar control and the assessment of their knowledge and attitude towards insulin, even if not using this drug, was considered important to evaluate the gaps that need to be addressed. The management of diabetes mellitus (DM) largely depends on patients' ability to self-care in their daily lives, and therefore, patient education is always considered an essential element of DM management. Studies have consistently shown that improved glycemic control reduces the rate of complications and evidence suggests that patients, who are knowledgeable about DM self-care, have better long term

glycemic control [12-14]. Thus it is indispensable to ensure that patients' knowledge, attitudes and practices are adequate.

Therefore we undertook this KAP study with two objectives - to assess the extent of insulin literacy in all adult diabetics irrespective of whether they are using insulin and to assess, in actual insulin users, the extent to which they follow accepted practice.

Knowledge about DM is a prerequisite for individuals and communities to take action for control the diabetes[15].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 diabetes [16].

2. Materials and Methods

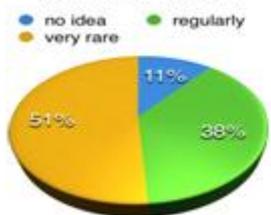
A pretested questionnaire consisting of 23 questions were framed based on the knowledge and awareness of insulin and were sent through online communication system (Whatsapp) with attached link to the online questionnaire (<http://surveyplanet.com/586530bbf46b72049e627266>). It was totally sent to 120 participants. But about 102 people took part in the survey from Chennai and fully responded. The study population age was 30-85 years.

3. Result and Discussion

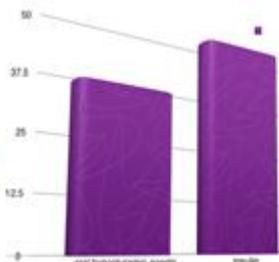
Data of all 102 surveyed subjects were included in the analysis. Majority were under 80 years of age with 40-49 years age group being the major contributor. More than half of the subjects were males. Almost all subjects had completed at least their primary education (96.6%) and majority were Hindus (83.9%). About 16% of the responders were unaware about the normal blood sugar level. About

51% of the study population do not get the post meal sugar check on a regular basis. 28% miss their insulin doses often and about 37% never got a eye check-up done. About insulin self administering, 18% are not confident. 61% of the responders are unaware of the insulin therapeutic uses for gestation diabetes and about 49% think that insulin is safer than oral hypoglycaemic agents.

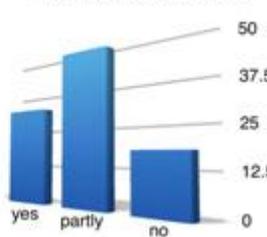
Do you get fasting/post meal sugar check regularly?



Which one do you think is safe?



Are you confident about self-administering insulin?



Do you believe that bitter condiments can be used to control blood sugar?



As far as knowledge and attitude are considered, the study population showed satisfactory trends comparable to earlier KAP studies conducted in other parts of India. [17-20] However, there are some points of difference in our study. Approximately 51% of our subjects had an unsatisfactory idea about diabetes and its signs and symptoms. Only a minority of our subjects reported carrying simple sugars while traveling as precaution against serious hypoglycemia. 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 [21-25]. 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.

4. Conclusion

Our study shows that majority of the responders had misconceptions regarding usage of insulin. Most of them were careless and were not confident in self administering of insulin. Hence, proper education and awareness programmes must be planned to educate people on proper directions and attitude towards insulin in order to avoid unnecessary complications. 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.

5. Conflict of interest

Nil

References

- [1] International Diabetes Federation. IDF diabetes atlas: 5 th ed. 2012 update [document on the internet]. 2012.
- [2] Mohan V, Sandeep S, Deepa R, Shah B, Varghese C. Epidemiology of type 2 diabetes: Indian scenario. Indian J Med Res 2007;125:217-30.
- [3] United States Centers for Disease Control and Prevention. Diabetes data and trends: Age-adjusted percentage of adults with diabetes using diabetes medication, by type of medication, United States, 1997-2011 [document on the internet]. 2013.
- [4] Kapur A, Shishoo S, Ahuja MM, Sen V, Mankame K. Diabetes care in India-patient's perceptions, attitudes and practices. Int J Diabetes Dev Ctries 1997;17:5-14.
- [5] Anitha Roy, et.al. International Journal of Pharmaceutical Sciences Review and Research. Volume 9, Issue 2, July – August 2011; Article-029
- [6] Mishra A, Pandey RM, Devi JR, Sharma R, Vikram NK, Khanna N. High prevalence of diabetes, obesity and dyslipidemia in urban slum population in northern India. Int J Obes Relat Metab Disord 2001;25:1722-9.
- [7] Madhu SV, Rao PV. Epidemiology of diabetes mellitus in India. In: Tripathi BB, Chandalia HB, editors. RSSDI Textbook of Diabetes Mellitus. 2 nd ed. Hyderabad: Research Society for study of diabetes in India; 2008. p. 209-26.
- [8] Ramachandran A, Snehalatha C, Kapur A, Vijay V, Mohan V, Das AK, et al.; Diabetes Epidemiology Study Group in India (DESI). High prevalence of diabetes and impaired glucose tolerance in India: National Urban Diabetes Survey. Diabetologia 2001;44:1094-101.
- [9] Shah VN, Kamdar PK, Shah N. Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. Int J Diabetes Dev Ctries 2009;29:118-22.

- [10] Priyanka Raj CK, Angadi MM. Hospital-based KAP study on diabetes in Bijapur, Karnataka. *Indian J Med Spec* 2010;1:80-3. Back to cited text no. 10
- [11] Malathy R, Narmadha M, Ramesh S, Alvin JM, Dinesh BN. Effect of a diabetes counseling programme on knowledge, attitude and practice among diabetic patients in Erode district of South India. *J Young Pharm* 2011;3:65-72.
- [12] McPherson ML, Smith SW, Powers A, Zuckerman IH (2008) Association between diabetes patients' knowledge about medications and their blood glucose control. *Res Social Adm Pharm Mar*; 4 (1) 37-45.
- [13] Norris SL, Engelgau MM, Narayan KM (2001) Effectiveness of self-management training in type 2 diabetes: a systematic review of randomized controlled trials. *Diabetes Care* 24: 561-87.
- [14] Duke SA, Colagiuri S, Colagiuri R (2009) Individual patient education for people with type 2 diabetes mellitus. *Cochrane Database Syst Rev Jan 21 (1)* CD005268.
- [15] Maina, W.K Ndegwa, M.Z. Njenga, WE. Muchemi. E.W knowledge, attitude and practices related to diabetes among community members in four provinces in Kenya: a cross- sectional study. *The Pan African Medical Journal*. Oct. 2010; 7.2.
- [16] Kahn.R.G. Weir.G.C. King.G.L Jacobson.A.M. Moses.A.C. Smith.R.J.. *Joslins diabetes mellitus.14 th .edition.-lippincott William wilkins publications.2008. 660-63.*
- [17] Shah VN, Kamdar PK, Shah N. Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. *Int J Diabetes Dev Ctries* 2009;29:118-22.
- [18] Priyanka Raj CK, Angadi MM. Hospital-based KAP study on diabetes in Bijapur, Karnataka. *Indian J Med Spec* 2010;1:80-3.
- [19] Malathy R, Narmadha M, Ramesh S, Alvin JM, Dinesh BN. Effect of a diabetes counseling programme on knowledge, attitude and practice among diabetic patients in Erode district of South India. *J Young Pharm* 2011;3:65-72.
- [20] Behera SK, Behera RR, Thakur H. A study of knowledge and practices in prevention of type 2 diabetes mellitus among Bhilai steel plant employees. *Indian J Med Specialities* 2012;3:143-8.
- [21] Shalini G.S. Latha Venkatesan. Home care management of diabetes mellitus. *Nightingale nursing time* 2006; Oct 11(8)4-5.
- [22] WHO technical series. Prevention of diabetes mellitus. *Journal of diabetic care* 1991; 16(4): 11-20.
- [23] Aishwarya Balakrishnan /J. Pharm. Sci. & Res. Vol. 7(8), 2015, 607-610
- [24] Vaishnavi Sivakali Subramanian(2015) Impact of Diabetes Mellitus Type 2 on Oral Health among Out Patient Department of Saveetha Dental College and Hospital. *International Journal of Science and Research (IJSR)*. ART2016780.
- [25] Sosa Georg, Anitha Roy(2015) novel approaches in insulin drug delivery- A review. *International journal of drug development and research*.