

A cross sectional study to know the knowledge and barriers of Insulin use among Type 2 Diabetes patients.

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Abstract

Introduction : All over the world, an estimated 382 million people are living with diabetes, and this number is expected to rise to 592 million by 2035. The estimated prevalence of 61.3 million in India is expected to rise to 101.2 million (65% increase) by 2030. It is known now that early insulin initiation is needed for tight glycemic control and delay in the onset of complications. There are many barriers of insulin therapy by diabetics as well as several patient related factors for delay in insulin initiation and maintenance. Since studies regarding Insulin use among Type 2 diabetes are few from Bihar and none from Madhepura, hence an attempt is being made to know the Barriers of Insulin use among Type 2 Diabetes patients.

Methods: A cross-sectional observational study was conducted among the patients with type 2 diabetes mellitus attending OPD at the Jan Nayak Karpoori Thakur Medical College & Hospital, Madhepura and Sadar Hospital, Madhepura who were on Insulin (months to years) or needed Insulin treatment, during the months from September 2020 to January 2021.

Results: The study included 120 Type 2 diabetic patients, where 68 (57%) were males and 52 (43%) were females. Their ages ranged from 23 to over 77 years (mean Age- 53.8 yrs). Majority of the patients (70.8%) were not known about the insulin either it would be harmful or safer for them. The perceived barriers to insulin therapy amongst all patients. 110 (91.7%) patients have the fear of Lipohypertrophy, 74 (61.7%) patients have the fear of Hypoglycemia, 110 (91.7%) feel that travel factor will disturb Insulin use for his treatment. In this busy world everyone have lack of time and this study shows that 86(71.7%) have busy schedule. 75(62.5%) have fear of pricking. 68(56.7%) have fear of Insulin itself as they have many misconceptions.

Keywords: Knowledge, Barriers, Insulin use, Type 2 Diabetes.

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I. Introduction:

All over the world, an estimated 382 million people are living with diabetes, and this number is expected to rise to 592 million by 2035.^{1,2} Epidemiological studies from India and international bodies have raised alarm on diabetes prevalence. More than 60% of world's population with diabetes comes from Asia of which two nations; India and China contribute the largest. Indians have poor glycemic control and that type 2 diabetes begins at an early age among Indians. The estimated prevalence of 61.3 million in India is expected to rise to 101.2 million (65% increase) by 2030 resulting in every fifth person with diabetes in the world to be an Indian.³ For the management of diabetes, there are various oral hypoglycemic drugs (OHDs) that are available worldwide. Recommendations for their use either as monotherapy or in combination with or without insulin are described in many of diabetes management guidelines including the American Diabetes Association (ADA) guidelines.⁴

It is known now that early insulin initiation is needed for tight glycemic control and delay in the onset of complications.⁷ Even though a large number of Indians with diabetes fail to achieve glycemic targets, Diabetes Attitudes, Wishes and Needs (DAWN) survey reported that Indian physicians delay insulin initiation longer than physicians from among 13 countries studied.³ There are many barriers of insulin therapy by diabetics as well as several patient related factors for delay in insulin initiation and maintenance. These factors have been studied by many researchers from various parts of the world. Similar study from King Saud University revealed One fourth (24.4%) of the diabetic patients refused insulin. Among the controlled group, 34.4% refused insulin, while 21% refused insulin among the uncontrolled group.⁴ Physicians' view of insulin efficacy is correlated with delay in insulin initiation which in turn is correlated with patient acceptance of insulin. Physicians' and patients' perception of efficacy and safety of insulin depends on their awareness of

insulin therapy and its benefits. The ease of administration and flexibility of use is an important factor affecting the acceptance of treatment recommendations. Patients feel using insulin therapy is inconvenient due to its interference with eating, exercise and daily routines and dissatisfaction associated with hypoglycemia, injection pain, time required to administer, and embarrassment. The broad picture that emerges, presents an interconnected causal chain of factors, which strengthen each other, thereby impeding the use of insulin therapy. Since studies regarding Insulin use among Type 2 diabetes are few from Bihar and none from Madhepura , hence an attempt is being made to know the Barriers of Insulin use among Type 2 Diabetes patients .

II. Methods :

A cross-sectional observational study was conducted among the patients with type 2 diabetes mellitus attending OPD at the Jan Nayak Karpoori Thakur Medical College & Hospital, Madhepura and Sadar Hospital, Madhepura who were on Insulin (months to years) or needed Insulin treatment, during the months from September 2020 to January 2021 .The patients were invited to participate in the study.⁸ The aim and rationale of the study to identify and address the knowledge and barriers to use insulin treatment were explained to each participant . An informed consent was signed by every patient included in the study. All type 1 diabetic patients, those below the age of 30 years and gestational diabetes have been excluded from the study.⁵ With pretested semi-structured interview questionnaire that was based on a literature review and interviews with diabetes experts, the data were collected and used to identify the barriers to use insulin treatment. Additionally, both qualitative and quantitative data were collected from patients to better understand the factors influencing participants' decisions about use of insulin and patient-held beliefs regarding the process. The qualitative component was designed to elicit the way that patients themselves spoke of their beliefs and concerns about insulin treatment. The quantitative component was designed to rank the importance of factors that patients felt influenced their decisions about initiating insulin treatment.⁶ Limitation of the data collection is that the patients have not been divided among two groups those who are using insulin from long and about to initiate the insulin treatment.

III. Results:

The study included 120 Type 2 diabetic patients, where 68 (57%) were males and 52 (43%) were females. Their ages ranged from 23 to over 77 years (mean Age- 53.8 yrs) and the details shown on box and whisker diagram fig.1. The majority 76(63.3%) were from Urban/ peri-urban background and 44(36.7%) were from rural background. 88(73.3%) patients were on Insulin (months to years) whereas rest 32(26.6) patients were about to start the same.

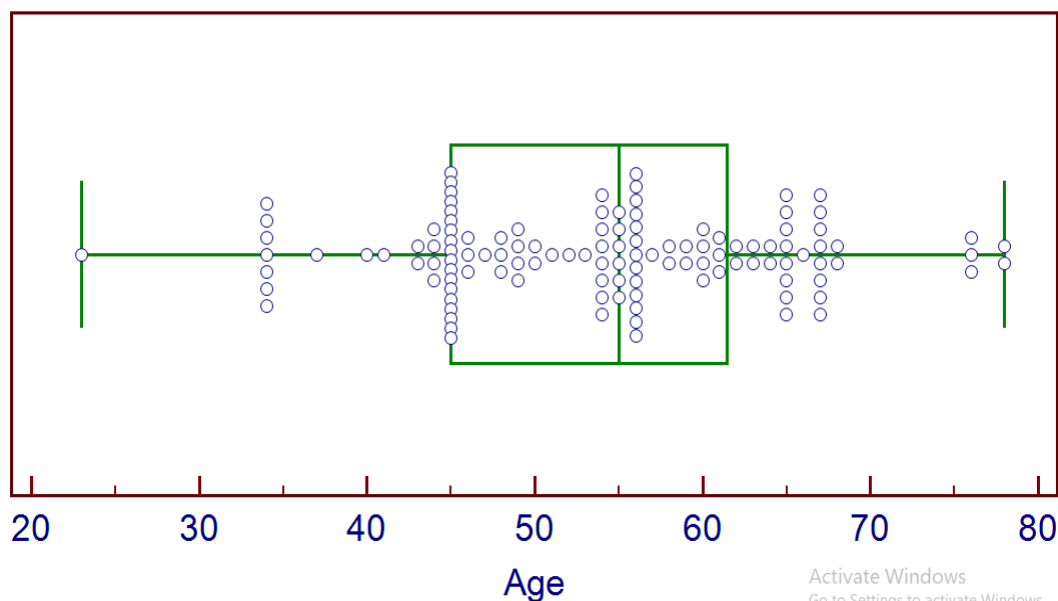


Fig.1- (Mean Age- 53.8 yrs, 95% CI = 51.8822 to 55.7178,)

Table 1 shows that majority of study participants had inadequate knowledge of Insulin practice. Majority of the patients (70.8%) were not known about the insulin either it would be harmful or safer for them. Response regarding the discontinuation (if given chance) to insulin were 81.7%. There were good knowledge regarding the site of insulin administration.

Questionnaire	Good	Average	Poor
Do you know about diabetes	46 (38.35%)	42(35%)	32(26.7%)
Do you know why insulin prescribed for diabetes	23(19.2%)	52(43.3%)	45(37.5%)
Do you know that insulin can be harmful/safe	12(10 %)	23(19.1%)	85(70.8%)
Do you know any other substitute for insulin	15(10.25%)	27(22.55%)	78(65%)
Are you aware that there are different types of insulin	28(23.3%)	41(34.2%)	51(42.5%)
Are you aware that insulin is mandatory in some patients	36(30%)	26(21.7%)	58(48.3%)
Are you confident about self-administration of insulin	32(26.7)	21(17.5%)	67(55.8%)
Given the chance would you stop insulin	98(81.7%)	16(13.3%)	6(5%)
Do you know hypoglycemia symptoms	42(35%)	44(36.7%)	34(28.3%)
Do you know the route of administration of insulin	69(57.5%)	26(21.7%)	25(20.8%)
Do you know about storage of insulin	78(65%)	37(30.8%)	5(4.2%)
Do you know the site of Insulin use	86(71.7%)	13(10.8%)	21(17.5%)

Table1: Data on level of knowledge regarding general information on DM patients

Fig 2 shows the perceived barriers to insulin therapy amongst all patients . 110 (91.7%) patients have the fear of Lipohypertrophy, 74 (61.7%) patients have the fear of Hypoglycemia, 110 (91.7%) feel that travel factor will disturb Insulin use for his treatment. In this busy world everyone have lack of time and this study shows that 86(71.7%) have busy schedule. 98(81.7%) have fear of Blood sugar fluctuations. 65 (54.2%) Patients have money issues and 66(55%) storage issues for Insulin use.75(62.5%) have fear of pricking,68(56.7%) have fear of Insulin itself as they have many misconceptions.

Barriers of Insulin

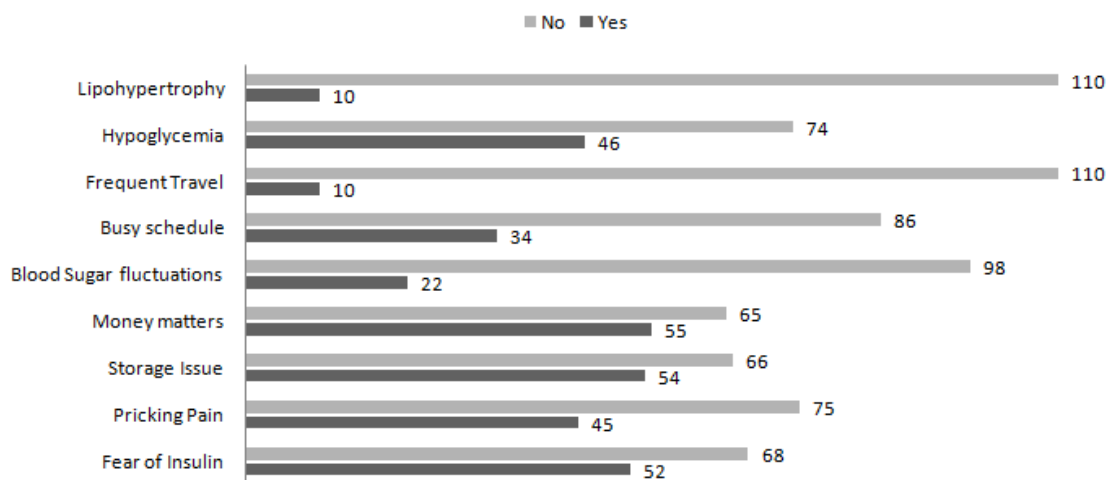


Fig.-2 Barriers of Insulin use by the patients.

IV. Discussion:

Being one of the very few studies on the subject in Bihar, we found that the knowledge and the barriers of the Insulin use is the major problem in study population. It is clinically advisable and in a timely manner can influence people with diabetes in their decision on whether or not to initiate/use treatment, and ultimately impact the management of their diabetes. Some of these patient concerns are myths and/or misconceptions, while others are realities of insulin treatment that may require further discussion, between patients and their providers to adequately address. The findings of our study support previously proposed barriers to insulin initiation as well as long term use. Knowledge, Attitudes, Wishes and resistance is the most significant barrier to the timely use of insulin therapy, and that physicians may also present barriers to insulin initiation, preferring to initiate insulin only when “absolutely necessary” and using it as a threat to motivate their patients. Some participants were not aware that early initiation of insulin can potentially lead to better control and that they may feel better once they are on insulin (for example, they will have more energy), or that insulin is a “natural” physiological replacement treatment for diabetes (data not shown). It is important to understand patients’ beliefs about barriers to insulin initiation as early as possible in the disease process. By understanding these factors early, and using targeted, scientifically correct information to counter negative or incorrect impressions, health care practitioners may be able to appropriately influence patients to initiate insulin therapy sooner. Once on insulin, there is then the potential to reduce patients’ negative opinions of insulin treatment and to improve their treatment satisfaction. Improving treatment satisfaction is of special importance given the positive association between

treatment satisfaction and medication compliance. There is a need for the formulation of diabetes- and wallet-friendly recommendations.⁷

V. Conclusion :

From this study, it can be concluded that inadequate knowledge and barriers of the insulin use affects the practice of Insulin administration in the study population. There exist beliefs that make it difficult to implement the correct practice in the population groups. There is lack of communication between the patients and the health care providers when it comes to insulin administration.

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