



## WHY ARE TYPE 2 DIABETICS REFUSING INSULIN? A HOSPITAL BASED STUDY TO FIND THE FACTORS INFLUENCING THE PATIENT'S READINESS FOR INSULIN.

### Diabetology

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### ABSTRACT

**INTRODUCTION:** Insulin is one of the vital component in diabetes management but it is often refused by most of the patients whenever it has to be initiated. This study was aimed to study the factors affecting the patient's readiness for Insulin.

**METHODS:** A total of 500 Type 2 Diabetics in whom Insulin was to be started were given a 20 point ITAS questionnaire to analyse their readiness for Insulin.

**RESULTS:** Only 14% patients were willing to start Insulin. Acceptance for Insulin was found more among males ( $\chi^2=7.668, p=.006$ ) and urban residents ( $\chi^2=12.82, p<.001$ ) but no significant difference was found among literate and illiterate population ( $\chi^2=4.96, p=.026$ ). Also elderly and those with longer duration of diabetes were more receptive for insulin.

**CONCLUSION:** Better glycemic control is the key to keep the complications of diabetes in check. Nevertheless, once the complications sets in then the patient becomes ready for Insulin but it is too late by then. So like nipping the evil in bud, it is important to educate the patients regarding diabetes, its complications and role of Insulin which can go a long way in preventing diabetes related morbidity and mortality.

### KEYWORDS

Diabetes, Insulin, ITAS (Insulin Treatment Appraisal Scale)

#### INTRODUCTION

Diabetes is a chronic progressive disease with a plethora of complications that further contribute to increased morbidity and mortality. In the last few decades, India like the rest of world has witnessed a dramatic surge in diabetic population, from 11.9 million in 1980 to 69.1 million in 2015<sup>1</sup>.

The progression of diabetes into its complications which can be both micro and macrovascular, can be prevented by maintaining good glycemic control and this can be done by timely initiation and intensification of treatment at various steps<sup>2,3,4</sup>. As the disease advances and euglycemia can no longer be achieved with lifestyle modifications and Oral Anti diabetics, then it becomes imperative to add Insulin which has proven efficacy in maintaining normal blood glucose levels<sup>5,6</sup>. But this is often hindered by the negative perceptions of patients regarding insulin. Most of the patients are reluctant and tend to delay the initiation of insulin for quite a long time<sup>7,8</sup>. Reports from DAWN (Diabetes Attitudes, Wishes and Needs) Study indicate that majority (54.9%) of Insulin naïve patients worry about the possibility of being started upon Insulin therapy<sup>9</sup>.

All the negative appraisals about Insulin therapy constitutes Psychological Insulin Resistance<sup>10</sup>.

#### AIMS & OBJECTIVES

This study was done to find out the factors affecting the patient's readiness for Insulin. An understanding of the patient's appraisals about Insulin therapy can thus help us to form strategies to overcome the attitudinal barriers among diabetic population.

#### MATERIAL AND METHODS

The study was conducted in a tertiary care centre, to study the factors influencing the patient's willingness to initiate insulin.

#### INCLUSION CRITERIA

Insulin naïve type 2 diabetic patients aged between 18-70 years with HbA1C >9% on lifestyle modification and inappropriate dose of Oral anti diabetics or HbA1C >7% on maximum dose of oral anti diabetic agents who are eligible for insulin.

#### EXCLUSION CRITERIA

All those patients who were pregnant, critically ill, with diabetic ketoacidosis, who were visually impaired were excluded from the study.

The study participants were given ITAS questionnaire (Insulin Treatment Appraisal Scale) to analyse their readiness for Insulin and

concerns about insulin therapy. ITAS comprised of 20 statements regarding insulin including 16 negative and 4 positive statements. Participants responded by indicating their level of agreement against each statement on a five point Likert scale (where 1= strongly disagree and 5= strongly agree). Thus the total negative score ranges from 16-80 and total positive score ranges from 4-20. The permission to ITAS for the study had been obtained from the concerned author who had developed and validated this questionnaire<sup>11</sup>. (Snoek FJ et al).

#### RESULTS

A total of 500 patients fulfilling the inclusion criteria were enrolled. The demographic characteristics of study population is as under. Among 500 patients, 43.8% (n=219) were females and 56.2% (n=281) were males. Also 63.4% (n=317) constituted the rural population and rest 36.6% (n=183) were residing in urban areas. 65.9% (n=327) were literate and 34.6% (n=173) were illiterate population.

The mean age group of study population was  $49.78 \pm 9.38$  years and the mean duration of diabetes of study population was  $5 \pm 3.47$  years. Only 70 patients (14%) out of total 500 reported willingness to start upon insulin. Among these 70 subjects, willingness was found more among males ( $\chi^2 = 7.668, p=0.006$ ) and urban population ( $\chi^2 = 12.82, p<0.001$ ) but no statistical significant difference was found among literate and illiterate population ( $\chi^2 = 4.96, p = 0.026$ ). This suggests that both the gender and residence are the demographic variables that contribute to the acceptability for insulin. However literacy has no such role.

In the ITAS questionnaire, the negative attitudes mostly endorsed by the patients were: 'Taking Insulin means my diabetes has become much worse' (n=189), 'Taking Insulin makes me more dependent on my doctor' (n=184), 'Injecting Insulin is painful' (n=150), 'Taking Insulin means other people see me as a sicker person' (n=104), 'Taking Insulin means I have to give up the activities I enjoy' (n=89), 'Taking Insulin makes life less flexible'

(n=79) and 'Managing Insulin injection takes lot of time and energy' (n=77).

ITAS negative score was found to be negatively correlated with age ( $r = -.153, p < 0.05$ ) and also with the longer duration of diabetes ( $r = -.229, p < 0.001$ ) thus suggesting that the elderly and the longer disease duration makes people more receptive for insulin. Higher ITAS negative score is seen among females ( $t = -2.739, p = 0.006$ ) and rural population ( $t = 3.568, p < 0.001$ ). Also 54 among the total 70 willing subjects were found to have all the three microvascular complications

i.e. retinopathy, nephropathy and neuropathy, thereby suggesting that as the disease progresses and the complications start appearing the patient become more willing to start upon Insulin.

## DISCUSSION

Our results indicate that majority of diabetic patients do not endorse the idea of initiation of Insulin for better glycemic control. Although those patients with long standing diabetes and the diabetic complications are more receptive to the idea of starting insulin but it is too late then and also strict glycemic control is not advisable for elderly and those with nephropathy and autonomic neuropathy because of risk of hypoglycemia<sup>12</sup>. That explains why early initiation and timely dose escalation is important so as to prevent and delay the complications of diabetes by providing better glycemic control.

All the negative beliefs and myths about Insulin contribute to the reluctance among patients for Insulin. Along with that the use of Insulin is often stigmatized in our society as people often fear that other people might see them as a sicker person and they become more dependent on the doctor.

There is lack of knowledge regarding the insulin use as the patients often fear that using insulin makes their life less flexible and it will take lot of time and energy. Besides that there is fear of using injection which the feel can be painful and daily using injection multiple times a day creates an unpleasant picture in their mind.

Majority of Insulin naïve diabetic patients believe that Insulin can not contribute positiveness in their health<sup>13</sup>. In another study 40 % of patients were found to have this notion that Insulin cannot help in achieving better glycemic control or improving the prognosis<sup>11</sup>.

The term "Psychological Insulin Resistance" was coined in 1994 to describe the resistance at both provider and patient level for initiating and maintaining Insulin therapy<sup>14,15</sup>. The main contributing factors to this Psychological Insulin Resistance is lack of knowledge and understanding about diabetes and insulin among patients<sup>10,16</sup>. This phenomenon of psychological insulin resistance can be treated by simple strategies like educating the patients about diabetes and its complications and how a good glycemic control can keep them in check. Besides this it is important to allay their fear regarding Insulin by demonstrations of insulin syringes and their use or making them aware about other options like Insulin pens, by sharing successful examples of patients who are using insulin themselves and by addressing their negative feelings and positively managing the expectations<sup>10</sup>.

In our study only 14% were willing to start upon insulin. In a small study by Nancy A. Allen et al they found that among 67 subjects, only 7 (10.4%) were willing to start insulin, 41 (61.2%) reported being

upset but would start insulin and 19 (28.4%) reported they would never start insulin<sup>17</sup>. In another study by J Mokta et al, only 7.88% patients readily agreed to start insulin initially but conducting lectures and informal discussions had positive impact on patient's willingness to start insulin and after these sessions 34.36% more patients agreed to start Insulin and they found that economic status and education status are inversely related to the acceptance for insulin<sup>18</sup>.

In our study the education status was found not to contribute much to the willingness for insulin. But the acceptance for insulin is found more among males and urban population. It is likely because of their better exposure to the discussion programmes about diabetes and insulin and also because males have less fear of injection. Also because of socio cultural factors females are less concerned about their health.

In this study, we have taken only those patients in whom insulin initiation is required in contrast to many other studies where only beliefs of patients about insulin are studied irrespective of whether they require insulin at that point of time or not. So the actual behavior of the patients when they are confronted by the idea of insulin initiation was underpinned in this study.

The limitations of this study are that:

- 1) Other attitudinal factors influencing the patient's readiness for insulin were not studied. For eg. Related to their disease distress or anxiety regarding medications.
- 2) In this study, the appraisals of patients regarding insulin after

educating them regarding the diabetes and insulin were not studied.

## CONCLUSION

To keep the pandemic of diabetes and its complications in check, it is important to educate the patients about the timely initiation and maintenance of Insulin. For this initiatives have to be taken by health care providers to address the negative beliefs of patients and positively managing their expectations. Insulin should be perceived as an extension of the current treatment rather than a new therapy

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