

# Awareness Regarding Early Initiation of Insulin in Type 2 Diabetes Mellitus in Family Physicians

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## ABSTRACT

**Objective:** (1) To assess the perception of early initiation of insulin in type 2 diabetic mellitus in family physicians of Karachi. (2) To develop a plan to motivate the family physicians to give preference for insulin in type 2 diabetic patients.

**Study Design:** Cross sectional study.

**Place and Duration of Study:** This study was conducted on Family Physicians of Karachi which was divided in 18 towns from April 2010 to December 2010.

**Materials and Methods:** 10 family physicians were included from each town from hospitals and clinics through non probability purposive sampling technique. The data was collected through pre tested structured questionnaire have questions regarding their perception and preferences of use of insulin in type 2 diabetic patients as first treatment as compared to oral hypoglycemic therapy.

**Results:** over all 180 family physicians were contacted out of which 133 were provide full information (response rate was 74%). Out of these 93(69.1%) were male and 40(30.1%) were female family physicians. Overall perception (63.9%) was not in favor of early initiation of insulin as monotherapy or as combined therapy. The rest (36.1%) who were of the opinion that insulin is better than oral hypoglycemic therapy, none of them were apply it clinically.

**Conclusion:** Majority of the family physicians suggest combination of life style changes with nutritional advice and oral hypoglycemic therapy. No one suggested insulin. Only few were had the knowledge about early insulin initiation as treatment in type 2 diabetics' mellitus. However all of them show their willingness for preferences to use insulin as first therapy in type 2 diabetes mellitus

**Key Words:** early initiation of insulin, Diabetic mellitus Type 2, Insulin as first resort, family physicians perceptions.

## INTRODUCTION

Diabetes mellitus is a syndrome characterized by hypoglycemia due to absolute or relative deficiency of insulin.<sup>1</sup> According to the etiological classification of diabetic mellitus; adult onset type 2 is most common. The factors known to be associated with it are insulin resistance, pancreatic islet cells destruction, genetic predisposition and environment. It can be treated by dietary modification, oral hypoglycemic agents and occasionally required insulin therapy.<sup>2</sup> the clinical complications incidences was reported strongly associated with glycemia.<sup>3</sup> According to the WHO 2009 report, it is estimated that there are more than 200 million people worldwide who have diabetics. The mortality associated with diabetes is expected to be double between 2005-2030 with much of it in developing countries. The major disease burden of it is due to it's long term complications and more than 80% diabetic deaths occurring in low and middle income countries.<sup>4</sup> Hyperglycemia is the single most independent predictor for the development of both micro vascular and macro vascular complications. Cardiovascular disease is the major cause of morbidity and mortality in patients with diabetes. In experimental

models, prolonged exposure to hyperglycemia has been shown to result in glucotoxicity<sup>(7)</sup> and oxidative stress<sup>(8-9)</sup>, culminating in cell destruction<sup>(10)</sup> and microvascular and macrovascular complications<sup>(11-12)</sup>. The recent ADOPT study showed that by using insulin sensitizers, the rate of rise in HbA1c could be markedly reduced from 2.4% per year with sulphonyurea to 1.2% per year with metformin and 0.7% per year with rosiglitazone<sup>(13)</sup>. However, zero deterioration in the long run has not yet been achieved up till now. Therefore, one can expect that almost every diabetes patient will need insulin if they survive long enough. This has been well demonstrated in the UKPDS study, in which multiple therapies including insulin were needed as disease progressed<sup>(14-15)</sup>. The recent IDMPs study, which was a clinic based survey of diabetes patients, showed that 31% of Type 2 diabetes patients were on insulin treatment<sup>(40)</sup>. Due to delayed presentation, a significant proportion of Type 2 diabetes patients have rather severe hyperglycaemia at the time of presentation. These patients are usually characterized by poor beta cell function and are in fact at a later stage of the disease<sup>(16)</sup>.

The awareness programmes regarding diabetics may help in the control of it as well as reduction in

complications through all the physicians, medical students, NGO's, media etc.<sup>5</sup> it is also important that the physicians should select the right choice of insulin regimens for better result of the patients.<sup>6</sup> Therefore this study was developed to assess the physician's perception regarding use of insulin in type 2 diabetes mellitus.

## MATERIALS AND METHODS

This descriptive cross sectional study was done on family physicians of Karachi irrespective of gender, age and experience over a period of 9 months from April 2010 to December 2010. Karachi has been divided into 18 towns and we have selected 10 family physicians on non-probability purposive sampling method from each town. But due to different reasons 47 family physicians either not respond or provide very little information. So finally 133 family physicians were included in this study. A pre tested questionnaire was use to collect the data. Those family physicians who were working for a particular specialist were excluded. A written consent was taken by each participant. The questionnaire has the questions regarding age, sex, experience, number of diabetic patients seen per day, research experience, knowledge about insulin use in type II diabetic patients and their way of treatment and finally their perception regarding use of insulin as first therapy in type II diabetic mellitus cases. The data thus collected was analyzed through SPSS version 16.0.

## RESULTS

Over all 133 respondents agreed to fill the questionnaire. Out of these 70 (52.6%) were at hospital place where as remaining 63 (47.4%) were at their clinics. The gender of the respondents was 69.9% male and 30.1 % were females. 59.4% of the respondents were only MBBs where as 40.6% were post graduate. Most of them (44.4%) have <5 year experience. Majority (60.9%) have no experience of research. Most (46.6%) of the respondent doctors deals more than 5 diabetic patient per day and they suggest treatment to them. In majority (63.9%) cases, their suggestion is combined therapy of life style changes with nutritional advice and drugs. the drugs they suggested in oral tablets where as only in 12% cases of type II diabetics they give insulin therapy. The physician's opinion regarding role of insulin therapy in the patients with diabetes type II were also recorded. They were of the opinion that it maintain strict blood glucose level (35.3%), prevents organs complications (27.0%), effective when Oral Hypoglycemic Agents fails (18.0%) and have fewer side effects (3.0%). Majority of them (75.2%) have the knowledge that insulin keeps HBA1C with in normal range as compare to Oral Hypoglycemic Agents. similarly majority (59.4%) have the knowledge that insulin is better than Oral Hypoglycemic Agents

because latter have more devastating side effects. However majority (51.1%) think that Oral Hypoglycemic Agents are better treatment in diabetic mellitus type II. Knowledge of the physicians regarding way of prevention of organ complication, majority think that tight control of blood sugar level is the best way. However 31.6% were of the opinion that early initiation of insulin can prevent the organ complications. Response of majority of physicians (60.2%) was negative regarding use of insulin as first resort in diabetic mellitus type II.

## DISCUSSION

This study is for the first time with no available data to compare with but only these results can be supported by related studies on strict glucose control and long term complications both micro vascular and macro vascular. In past as by Krolewski., James., Lawrence., Ronald., 1987 proposed that type 2 diabetes can be treated by dietary modification, oral hypoglycemic agents and occasionally requires insulin therapy, but now there are evidence that early initiation of insulin prevent pancreatic exhaustion and it is review under article "Early and Aggressive Initiation of Insulin Therapy for Type 2 Diabetes". Which also emphasis on the fear of doctors and patients regarding the hypoglycemia and weight gain and suggests that by using new insulin analogues this problem can be prevented. In studies<sup>7, 8</sup> it also prove that early start of insulin therapy in patients with type 2 diabetics is better. In other study, it was reported significant results of use on insulin in type 2 diabetics.<sup>9,10</sup> Though in UKPDS it was said that there is no difference regarding prevention of complication by intensive glycemic control with either of oral hypoglycemic drugs or insulin it's the intensive glycemic control which is important which in contrast to a china study which says insulin is better therefore there is need to do further research regarding early use of insulin in diabetic mellitus type II. So the purpose of this study was to know knowledge of physicians of Karachi regarding this matter and further more to highlight this problem for further research.

## CONCLUSION

As most of the family physicians have no experience of research therefore they have not come to understand the change in the therapy to start insulin early in type ii diabetic patients. Their perception is still the old one to use oral hypoglycemic therapy alone or in combination with other oral hypoglycaemic drugs.

**Recommendations:** Family and general physicians should be educated from time to time by conducting workshops and other discuss at different forums on new research and disease management strategies.

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