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Research Article

**ANALYSIS OF INSULIN GLARGINE IN THE TREATMENT
OF ELDERLY PATIENTS WITH DIABETES****¹Dr Aalia Rubab, ²Dr Zarmeena Zulfiqar, ³Dr Umar Hammad Rashid**¹Women Medical Officer at THQ Hospital, Kot Momin Sargodha, ²Women Medical Officer at THQ Hospital, Pindi Bhattian, ³Medical Officer at RHC Mitha Tiwana, Khushab**Article Received:** April 2019**Accepted:** May 2019**Published:** June 2019**Abstract:**

Introduction: Diabetes prevalence in older people increases with advancing age. The global prevalence of diabetes in people between the ages of 60 and 79 is 18.6%, which is more than 134.6 million people, and accounts for 35% of all cases of diabetes in adults.

Aims and objectives: The basic aim of the study is to analyze the effectiveness of insulin glargine in the treatment of elderly patients with diabetes.

Material and methods: This cross-sectional study was conducted in THQ Hospital, Kot Momin Sargodha during October 2018 to March 2019. The data was collected from 100 type 2 diabetic patients. The patients were treated with 50- or 100-mg insulin glargine two or three times per day with meals and followed up for 8 to 10 weeks after the initial visit. The decision on the treatment duration was solely at the discretion of the attending physician. The medication was prescribed within the regular practice of the physician.

Results: The data was collected from 100 diabetic patients. The mean age of the group was 60.3 ± 11.5 years. BMI was 24.2 ± 3.2 kg/m², duration of diabetes was 12.8 ± 7.7 years and basal insulin therapy period was 2.5 ± 2.6 years. The primary efficacy outcome was that HbA1c decreased significantly over the course of the observation period ($0.55 \pm 1.05\%$; $P < 0.0001$). FBG decreased by 0.89 ± 3.79 mmol/L. Postprandial glucose was reduced by 2.59 ± 4.77 mmol/L.

Conclusion: It is concluded that combined insulin and insulin glargine therapy improves glucose control among different subgroups of patients with type 2 diabetes, and that the majority of clinicians and patients are satisfied with the treatment.

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INTRODUCTION:

Diabetes prevalence in older people increases with advancing age. The global prevalence of diabetes in people between the ages of 60 and 79 is 18.6%, which is more than 134.6 million people, and accounts for 35% of all cases of diabetes in adults. Peripheral neuropathy, which is highly prevalent in older people with diabetes, increases the risk of falls and fractures, and consequently, of functional impairment [1]. Diabetes in older people is also associated with dementia and depression. Diabetic patients with depressive symptoms may need more attention in treating their condition, particularly women. Age-associated alteration in metabolism and excretion of medication is also a concern in the selection of antidiabetic treatment. Older people are also at increased risk of undernutrition and skeletal muscle loss, which is generally even more evident with the presence of diabetes. Older people with diabetes are considered at high cardiovascular risk [2].

Risk of hypoglycemia is also increased due to impaired counter regulatory mechanisms. These biopsychosocial changes increase the complexity in managing diabetes in older adults. Importantly, much attention has been paid to optimal glycemic control in the elderly in the past few years. Guidelines focusing on the elderly with diabetes were developed all over the world in the past decade with increasing focus on cognition and functional capacity [3].

Type 2 diabetes mellitus is an epidemic resulting in enormous human suffering, such as cardiovascular disease or renal failure, and economic costs. Much of the morbidity associated with long-term complications can be reduced by lowering blood glucose close to the range of a non-diabetic individual [4]. Given the progressive nature of diabetes and the substantial evidence supporting insulin regimens, patients must utilize insulin therapy to maintain glycemic control, and reduce morbidity and mortality rates associated with diabetes and its related complications [5]. Several studies have evaluated the efficacy of insulin

glargine when combined with insulin therapy, but most were carried out some time ago, therefore they utilized normal insulin. Recently, insulin analogs with quite a long half-life have become available, and are gaining the popularity [6].

AIMS AND OBJECTIVES:

The basic aim of the study is to analyze the effectiveness of insulin glargine in the treatment of elderly patients with diabetes.

MATERIAL AND METHODS:

This cross-sectional study was conducted in THQ Hospital, Kot Momin Sargodha during October 2018 to March 2019. The data was collected from 100 type 2 diabetic patients. The patients were treated with 50- or 100-mg insulin glargine two or three times per day with meals and followed up for 8 to 10 weeks after the initial visit. The decision on the treatment duration was solely at the discretion of the attending physician. The medication was prescribed within the regular practice of the physician. During that timeframe, at least two follow-up visits were documented. Basic assessments and blood samples were carried out at baseline, two follow-up visits and the final visit 20 weeks after the patients commenced taking the study medications. All patients were advised to continue with their usual diet, physical activity and medications.

Statistical Analysis: The results were expressed as the mean \pm standard deviation and/or median value (range) for continuous variables.

RESULTS:

The data was collected from 100 diabetic patients. The mean age of the group was 60.3 ± 11.5 years. BMI was 24.2 ± 3.2 kg/m², duration of diabetes was 12.8 ± 7.7 years and basal insulin therapy period was 2.5 ± 2.6 years. The primary efficacy outcome was that HbA1c decreased significantly over the course of the observation period ($0.55 \pm 1.05\%$; $P < 0.0001$). FBG decreased by 0.89 ± 3.79 mmol/L. Postprandial glucose was reduced by 2.59 ± 4.77 mmol/L.

Table 01: Analysis of haemoglobin A1c, glucose and weight from baseline to week 20

Parameters	Baseline	10 weeks	Change	P-value
HbA1c (%)	8.55 ± 0.83	7.99 ± 1.24	-0.55 ± 1.05	<0.0001
Fasting blood glucose (mmol/L)	8.00 ± 3.46	7.14 ± 2.47	-0.89 ± 3.79	<0.0001
Postprandial glucose (mmol/L)	13.54 ± 4.18	10.95 ± 3.41	-2.59 ± 4.77	<0.0001
Weight (kg)	63.41 ± 11.10	63.61 ± 11.06	-0.23 ± 2.21	0.0805

DISCUSSION:

Type 2 diabetes mellitus is a progressive disease characterized by insulin insufficiency and resistance along with chronic hyperglycemia. Although the mean HbA1c after 20 weeks treatment of insulin glargine (7.99%) was somewhat still higher than the treatment target of <7%, it should be noted that insulin glargine had a neutral effect on bodyweight, and did not trigger any severe adverse events or hypoglycemia, two common side-effects of diabetes treatments, in particular insulin treatment [7]. These two aspects (hypoglycemia and bodyweight) are supported by recent several meta-analyses, and might be explained by the insulin-sparing mechanism of insulin glargine. As insulin glargine is a drug that targets postprandial glucose levels, a significant declined-pattern of postprandial glucose level after additional insulin glargine treatment was shown in a group of higher baseline postprandial glucose levels [8].

Elderly patients with type 2 diabetes mellitus are more likely to have the additional burden of diabetes-related complications and asymptomatic hypoglycaemic events due to the decline in their ability to adjust their physiology [9]. Therefore, adequately controlling blood glucose and reducing complications should be emphasized, in the clinical management of type 2 diabetes mellitus in elderly patients [10,11].

CONCLUSION:

It is concluded that combined insulin and insulin glargine therapy improves glucose control among different subgroups of patients with type 2 diabetes, and that the majority of clinicians and patients are satisfied with the treatment.

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