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EFFECTIVENESS OF GLIMEPIRIDE ON THE PATIENTS SUFFERING FROM TYPE 2 DIABETES

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Abstract:

Objective: *This case work aimed to assess the effectiveness of the glimepiride going beyond four milligram in our routine practice, since the reaction of this drug is reproducibly dependent on dose and maximum dose of the glimepiride can be up to eight milligrams.*

Methodology: *This study was a prospective research work in which we selected one hundred and thirteen participants (Fifty-six males & fifty-seven females) from the outpatient department of the Sir Ganga Ram Hospital, Lahore. This case work started from 1 November 2017 and last participant got enrollment on 31 August 2018. We gave 6 to 8 milligram glimepirides to the patients with HbA1c greater than 8.0% on the highest dose of other OHA (oral hypoglycemic agents) & we followed up the treatment. We rechecked the HbA1c after 3 to 6 months and this was the finish point for the patients in this research work.*

Results: *The average baseline HbA1c of all the patients was about 10.170%. We followed the patients and HbA1c carried out after a mean duration of five months. Level of HbA1c of the patients continuing on six milligram glimepirides (n: 103) was 8.730% whereas those patients on eight milligrams (n: 10) was 8.260%. Adjusted average disparity of HbA1c from baseline to the 2nd specimen for six milligrams was -1.44% & for eight milligrams was -1.910% which was statistically important. So, the reduction of the percentage in the average HbA1c for six milligrams was 14.20% & for eight milligrams was 18.80% correspondingly in the subjects of this research work.*

Conclusion: *The decrease of the average HbA1c prior and after therapy in both the six & eight milligram groups was statistically important over the duration of this research study.*

Key Word: *Glimepiride, milligram, Type-2 diabetes, research study, methodology, dependent, reaction, average.*

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INTRODUCTION:

Type-2 diabetes is the abnormality of insulin lack and resistance. The resistance of insulin is high at liver level, muscle & adipose tissue [1, 2] and as an outcome of deficiency of insulin: at 1st relative to their need & later a complete insufficiency [3]. The prevention of complications associated with diabetes is possible with the strict glycemic control [4-7]. This control is the main objective of the anti-diabetic treatment. SUs (sulfonylureas) are oral anti-diabetic agents whose utilization can be carry out by the patients of the Type2 diabetes because these agents stimulate the discharge of the insulin from beta cells of pancreas & have a quantity of the extra-pancreatic impacts including high uptake of insulin-mediated glucose [8]. For glimepiride, demonstration of the extra-pancreatic carried out [9-12]. This medicine has the ability to improve the sensitivity of insulin of the peripheral tissue [11].

Glimepiride has the ability to enhance the amount of the transporter molecules of glucose in the membrane of plasma of peripheral muscle, adipose tissue & increases their uptake for glucose. This very agent has the ability to activate the synthesis for insulin-mediated glycogen and restricts the hepatic gluconeogenesis. Both the rise in the insulin secretion & improvement in the utilization of the glucose are accountable for glucose-dropping properties of this very agent. The absorption of glimepiride is rapid and fully after orally administration [13]. There is non-availability of gathering in the circulation after many doses [14]. Various enzymes fully metabolize the glimepiride [15].

Since glimepiride's action is reproducibly dependent on dose & dose of this medicine can be up to eight milligram, the main purpose of this case work was to assess the effectiveness of glimepiride going beyond four milligram in our normal routine practice. As major main feature of effectiveness, maintenance of the record of HbA1c carried out after 3 to 6 months.

METHODOLOGY

This study was a prospective research work in which the recruitment of the one hundred and thirteen patients carried out from the outpatient department of the Sir Ganga Ram Hospital Lahore. This case work started from 1 November 2017 and last participant got enrollment on 31 August 2018. The patients having age from thirty to seventy years, suffering from Type-2 diabetes and HbA1c higher than 8.0% were the part of this research work. These patients were taking any of the following dose; Glibenclamide fifteen milligram, Gliclazide two hundred and forty milligram, Glimepiride four milligram, Metformin two thousand and five hundred milligram & Acarbose as three hundred milligram.

The patients having abnormal function of kidneys, proliferative retinopathy, various heart complications & Type-1 diabetes were not the part of this research work. Ethical board of the hospital gave the permission to conduct this research work. Patients with level of HbA1c greater than 8.0% on highest dose of oral hypoglycemic agents as present in the inclusion standard got shifting to the use Glimepiride six to eight milligram and we followed up the treatment. If fasting blood glucose was less than 140mg/dl at the end of fourteen days with the utilization of Glimepiride, we continued the same treatment for the patients. If the control of the blood glucose was unsuitable at any time in the duration of the research work, physician stated the treatment of those patients according to their wish. We rechecked the HbA1c after three to six months and this was the finish point of the study for the patients.

We conducted the complete physical and clinical examination prior and after the period of research study.

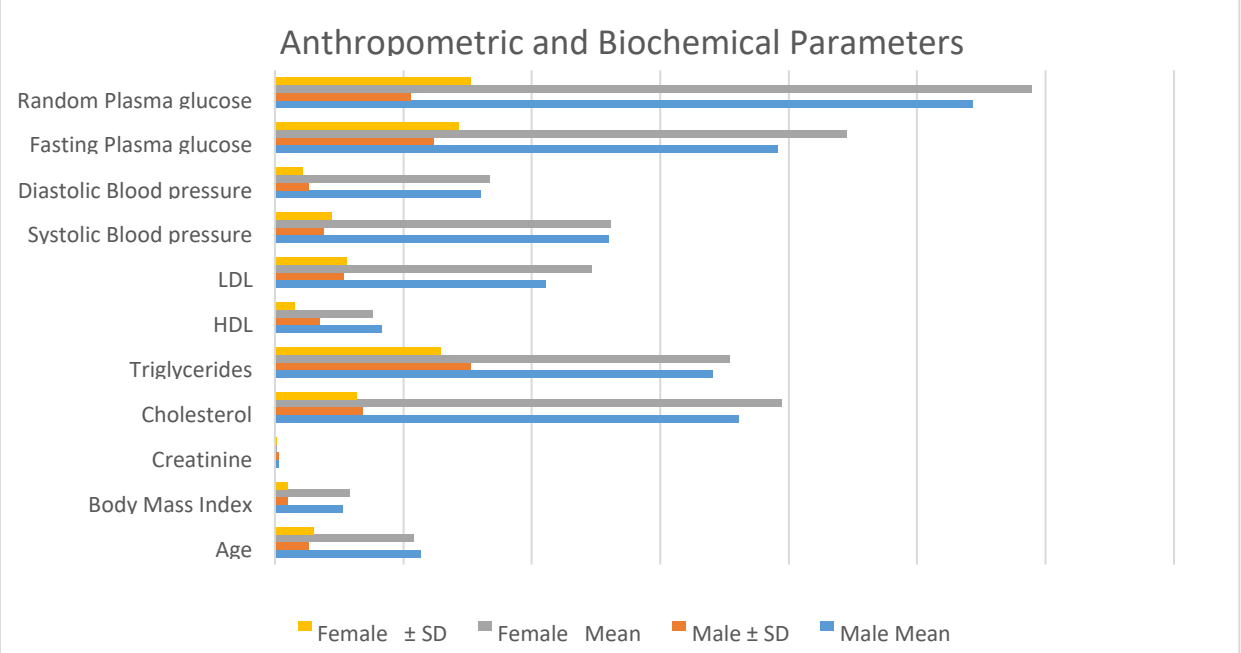
We used a well-organized Performa for the collection of the information regarding various variables. SPSS V. 10 was in use for the statistical analysis of the collected information. We computed the descriptive statistics for various variables of demography. Paired T test was in use for the comparison of the disparity in the average HBA1c at baseline & at finish point of the research work.

RESULTS:

Total one hundred and thirteen patients recruited for this research work. Both genders were almost equal in quantity (males: 56, females: 57). Body mass index of greater than 23.0 kg/m2 was available in 86.0% participants. Baseline information of the specimens in accordance to the gender disparities is present in Table-1. Out of total one hundred and thirteen patients recruited in this case work, one hundred and three got shifting from four to six milligram glimepiride whereas ten patients got shifting from four to eight milligram glimepiride by the professional in accordance with the glycemic control of the patients. Glycemic control was the basis to follow the patients and alteration in the regimen of the medicines carried out on the desire of the professional. Average baseline HbA1c in the start of the research work was 10.170%. We followed the patients & HbA1c performed on following visits. We carried the analysis of the patients present with both readings of the HbA1c.

Table-I: Gender differences in Anthropometric and biochemical parameters of subjects.

Parameters	Male		Female		P value
	Mean	± SD	Mean	± SD	
Age	56.570	13.260	53.790	15.010	0.3520
Body Mass Index	26.260	5.090	28.860	4.910	0.0200
Creatinine	1.250	1.160	0.850	0.130	0.0410
Cholesterol	180.450	34.200	197.130	31.990	0.0540
Triglycerides	170.490	76.050	177.170	64.240	0.7170
HDL	41.700	17.340	37.790	7.510	0.2690
LDL	105.400	26.580	123.210	27.940	0.0150
Systolic Blood pressure	129.950	18.940	130.490	22.070	0.9070
Diastolic Blood pressure	80.330	13.190	83.440	10.740	0.2470
Fasting Plasma glucose	195.760	61.730	222.560	71.480	0.1240
Random Plasma glucose	271.640	52.700	294.380	76.110	0.3990



HbA1c of the patients continuing on six milligram glimepiride (n: 103) was 8.730% whereas those on eight milligram (n: 10) was 8.260%. Adjusted average disparity HbA1c from baseline value to after treatment specimen for six milligram was -1.440% & for eight milligram as -1.910% which was statistically important. So, the decrease in the percentage in average HbA1c for six milligram was 14.20% & for eight milligram was 18.80 correspondingly in the patients of this research study. We took this as the finishing point of this research work.

DISCUSSION

This research work carried out to determine the effectiveness of six milligram and eight milligram glimepiride for the duration of this research in the patients suffering from Typ-2 diabetes. The decrease of the average HbA1c prior & after therapy in both six & eight milligram groups was statistically important over the duration of this research study. Disparity between baseline & after therapy levels of HbA1c was also significant. Other research works have also displayed a decrease of HbA1c of 1.80% with a daily dose of four milligram glimepiride over a period of fourteen weeks of treatment whereas decrease of 1.30% to 1.80% was present in an eight week non-interventional research study that contained 22045 patients who were obtaining daily dose of 1.80-2.40 milligram glimepiride [17, 18].

Overall, outcomes of the important research works have displayed at least healing similarity between glimepiride, gliclazide, glibenclimide & glipizide. However, glimepiride obtained metabolic control at recent dosage comparative to other SUs (1.0-8.0 mg/dl) & it was able to give maximum glycemic control with only one dose daily [19]. Overall assessment was depending upon the decrease in the levels of HbA1c in current research study which displayed a statistical significant at a mean duration of five months which proposes the steadiness in the function of pancreas with the utilization of glimepiride.

CONCLUCION

The findings of this research study concluded that six milligram & eight milligram glimepiride decreases HbA1c in in the patients of current case work for mean duration of five months and it has an effective use in this matter. As presented by other prospective research studies like DCCT or UKPDS, there was an adverse glycemic control with the passage of the time & there is need to alter the modalities of treatment to obtain the required HbA1c.

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