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Comparative Study of Repaglinide and Glibenclamide on the Glycemic Control, C-Peptide and Insulin Resistance in Type 2 Diabetic Patientss			2010/11/11	أكاديمي	للتطبيق فقط
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الكلمات المفتاحية : Type 2 diabetes mellitus, postprandial hyperglycemia, glycated hemoglobin, repaglinide					

Abstract

Objective: Non-randomized clinical trial was conducted to compare the effects of repaglinide versus glibenclamide on glycemic control, fasting insulin and C-peptide concentrations and insulin resistance in newly diagnosed type 2 diabetic patients.

Patients and methods: Thirty-eight newly diagnosed type 2 diabetic patients were enrolled in this follow up trial. They were requested from Al-Wafaa Center of Diabetes Management and Research in Mosul during the period from December 2010 to April 2011. Only twenty–four patients completed the follow up period and they were divided into two groups: group (1) included twelve patients received repaglinide therapy in a dose of 2mg three times daily before each main meal, and group (2) included twelve patients received glibenclamide therapy in a dose of 5mg once daily. Different biochemical parameters were measured at the baseline and after 8 weeks including fasting plasma glucose (FPG), 2h. postprandial plasma glucose (2h.PPG), glycated hemoglobin (HbA1c), fasting serum insulin, C-peptide concentrations and insulin resistance was measured by Homeostasis Model Assessment-Insulin Resistance (HOMA-IR).

Results: The study showed that meal associated repaglinide treatment result in a significant decrease in FPG, 2h. PPG, HbA1c and HOMA-IR values with significant increase in fasting insulin and C-peptide concentrations after 8 weeks of treatment, whereas glibenclamide did not produce similar effects after the same period of the follow up. By comparing the effects of repaglinide to those of glibenclamide and diet, the study revealed that repaglinide reduces the 2h. PPG significantly more than glibenclamide with no significant differences between the both treatment groups in reducing FPG and HbA1c levels. Regarding fasting insulin and C-peptide concentrations, the present study demonstrated that repaglinide increases the fasting serum insulin and C-peptide concentrations more significantly when compared with glibenclamide group. Insulin resistance was assessed using HOMA-IR and it was significantly decreased in patients receiving repaglinide therapy compared to patients on glibenclamide treatment at the end of the study.

Conclusion: The study concluded that repaglinide is a more effective insulin secretagogue than the traditional one, glibenclamide, because it improves glycemic control more than glibenclamide. Moreover, its pharmacokinetic properties differ from those of sulphonylureas, as it is rapidly absorbed with short duration of action; making it an ideal oral prandial glucose regulator through the improvement of postprandial hyperglycemia. In addition to that, improvement of HbA1c supports that long term use of repaglinide will reduce the diabetic complications.

Treatment with repaglinide produced high serum insulin and C-peptide concentrations when compared to glibenclamide, because it closed the KATP channels of the pancreatic β-cells more potently than glibenclamide. Insulin resistance, measured by HOMA-IR, was significantly lower in patients received repaglinide therapy in comparison to those received glibenclamide at the end of the study.

المشرف على الدراسات العليا

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