



The Levels of Blood Glucose And Counting of Carbohydrate-Fat-Protein In Diabetic Children Using Pump with Aspart And Glulisine

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Introduction

In children with Type 1 diabetes, the insulin dose administered to, fasting blood sugar, the amount of food, contents and glycemic index can affect the postprandial blood sugar. Despite the intensive insulin therapy and carbohydrate (CHO) counting the expected improvements in glycemic control is not observed. Compared to other fast affecting analogues, Insulin glulisine has a faster onset of effect and a shorter duration. It has previously been reported that, in children who have undergone insulin pump therapy, glulisine is more effective and does not lead to hypoglycemia.

Method

It was planned to work with 15 children and adolescents between the ages of 6 and 18 years with type 1 diabetes using insulin infusion pump. Preliminary results were given to 5 patients who completed the study. The first week cases used Aspart Insulin for 6 days and blood glucose levels were monitored while Medtronic Ipro2 was continuously attached to the glucose measurement device. And then insulin glulisine was taken after 2 weeks for 6 days. On the 2nd and 5th days, a pizza of 84 g CHO (38.4%), 36g fat(39.9%) and 46g protein(21.7%) was consumed at lunch. On the 2nd day there was normal bolus according to the amount of CHO and on the 5th day according to the amount of CHO, there was normal bolus and an additional insulin spreading bolus for fat-protein content were applied (calculated according to the algorithm of Pankowsa et al.)

Results

A significant increase in the frequency of hypoglycemia with a lower mean blood glucose levels were seen with glulisine insulin (Table 1). This was associated to the low number of cases and the frequent occurrence of hypoglycemia in one case. Blood glucose regulation was better in the CHO-fat-protein count with both aspart and glulisine insulin compared to the CHO count alone ($p>0.05$). There was no difference between the insulin levels in terms of CHO and CHO-fat-protein counts.

Conclusion

In children Glulisine insulin is an effective and safe in the treatment of insulin pump. The CHO-fat-protein count at high fat content provides better regulation for blood sugar.

Effects of Aspart and Glulisine on blood sugar.

	Aspart	Glulisine	p
Mean Glucose (mg/dl)	159.8±24.1	133.2±21.8	0.043
>140 mg/dl value (%)	59±17.8	30.8±17.7	0.043
140-70 mg/dl (%)	38.8±17	62.6±13.5	0.043
<70 mg/dl (%)	2.2±2.3	6.6±8.4	0.197

