Isolated Postprandial Hyperinsulinaemic Hypoglycaemia in children

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Background

In idiopathic postprandial hyperinsulinaemic hypoglycaemia (PPHH) symptoms compatible with hypoglycaemia occur in the first 4 hours post meal and coincide with glucose concentrations lower than 3.5mmol/l (63 mg/dL) and symptoms improve with dietary manipulation. Isolated postprandial hyperinsulinaemic hypoglycaemia (PPHH) in the paediatric age has been exceptionally reported in the literature.

Objective

To describe the clinical and biochemical characteristics as well as the management of a cohort of children with isolated PPHH followed at a single tertiary paediatric centre.

Subjects & Methods

6 children (3 males) were collected. The clinical characteristics, diagnosis, management and follow-up of patients with PPHH were retrospectively reviewed. The tests for diagnosis and monitoring were: 24 hour blood glucose profile, continuous blood glucose monitoring system, diagnostic fast, prolonged Oral Glucose Tolerance (OGTT) and Mixed Meal (MM). Management options included: dietary intervention, diazoxide and acarbose.

Results

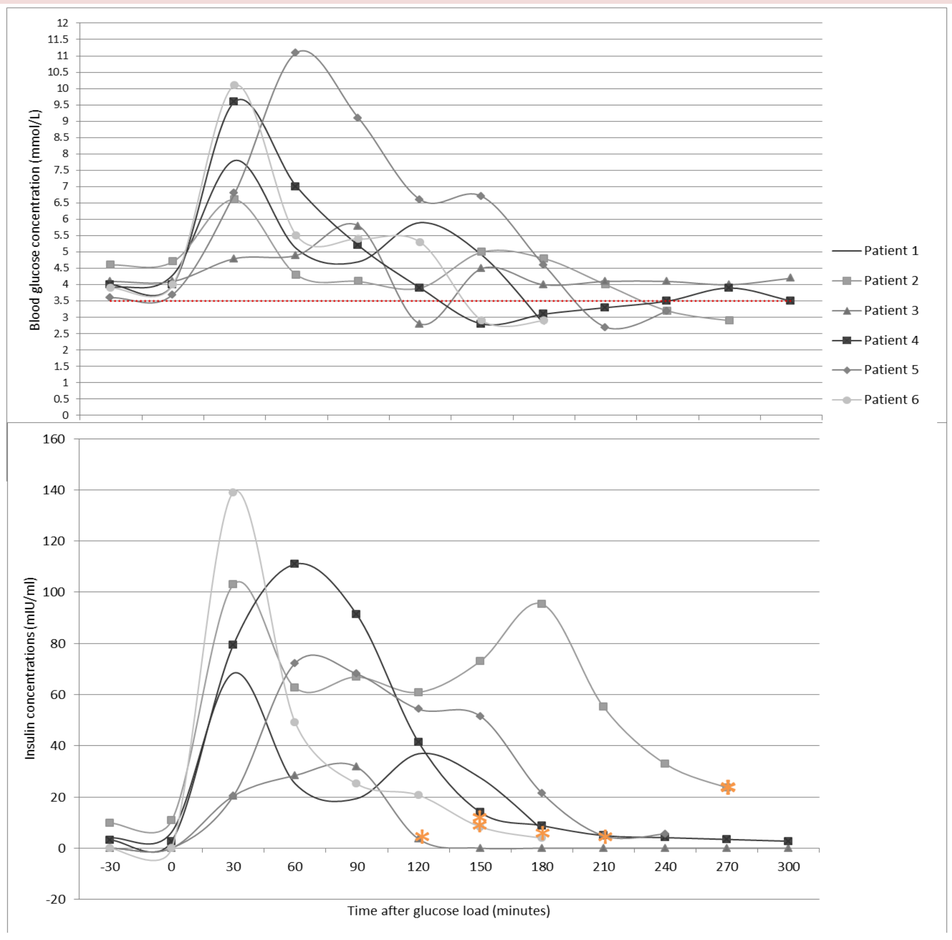
Table 1. *Patients Characteristics*

	Mean ± SDS
Age at onset of symptoms (years)	7.33 ± 3.18
Age at 1st visit for investigations (years)	8.20 ± 3.68
Height at the first visit (SDS)	0.28 ± 0.39
Weight at the first visit (SDS)	0.16 ± 0.44
BMI at the first visit (SDS)	0.47 ± 0.35
Age at diagnosis (years)	9.48 ± 3.48

All the patients showed a normal fasting tolerance.

The mean follow-up was of 3.3 ± 3.1 years.

Figure 1. *Glucose and insulin concentrations during initial prolonged OGTT. Insulin concentrations taken at the time of hypoglycemia are highlighted with a star**



Management

3 patients were tried on acarbose, which had a positive glycaemic and symptom-control effect, but due to its side effects 1 patient discontinued it. 1 patient responded to diazoxide. The other patients were managed on frequent feeds but, even on this, prolonged OGTT/MM demonstrated persisting PPHH. On follow-up 1 patient spontaneously grew out of the condition.

Figure 2. *Patients who continued on medication.* ***2A.-*** *Follow-up of patient managed with acarbose (Patient 5).* ***2B.-*** *Patient managed with diazoxide (Patient 3).*

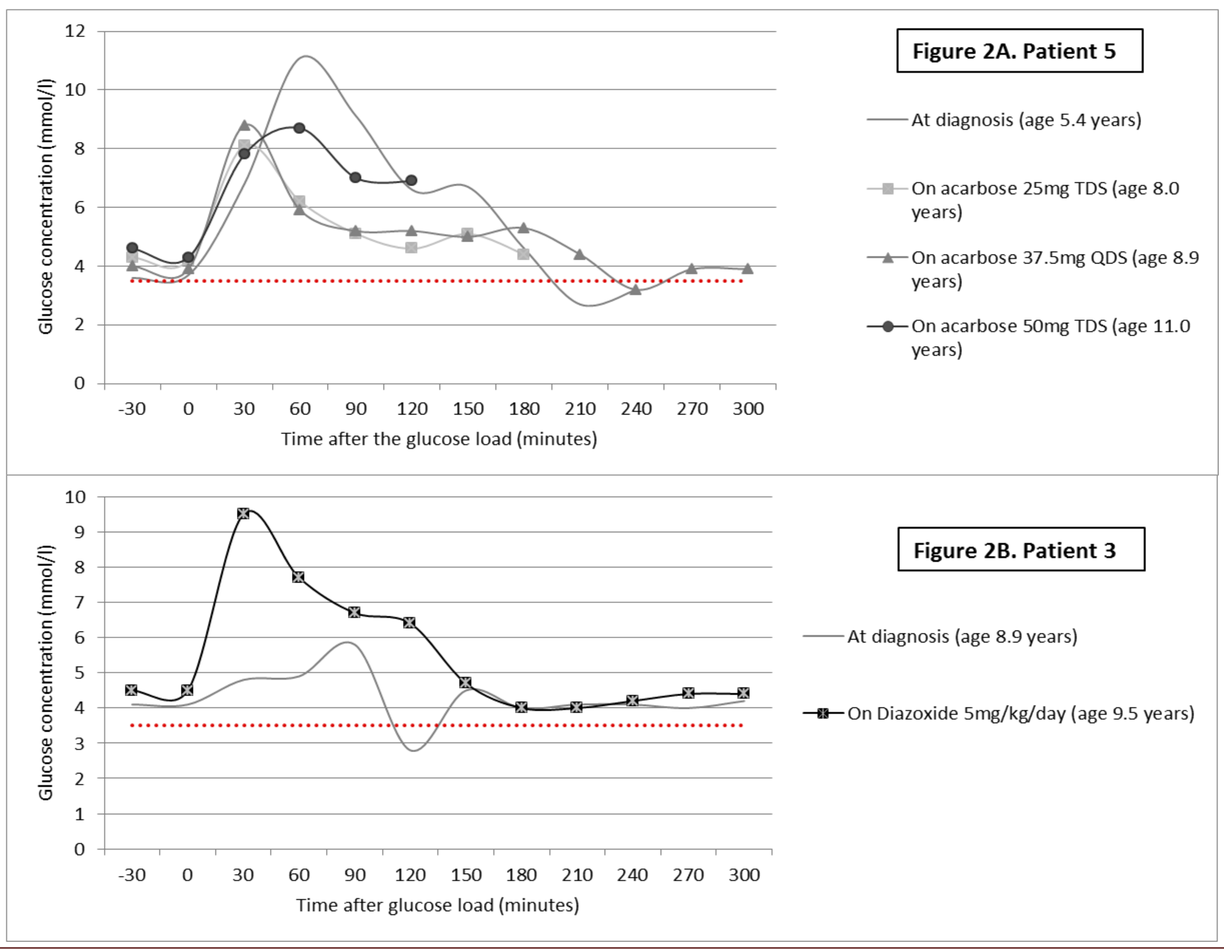
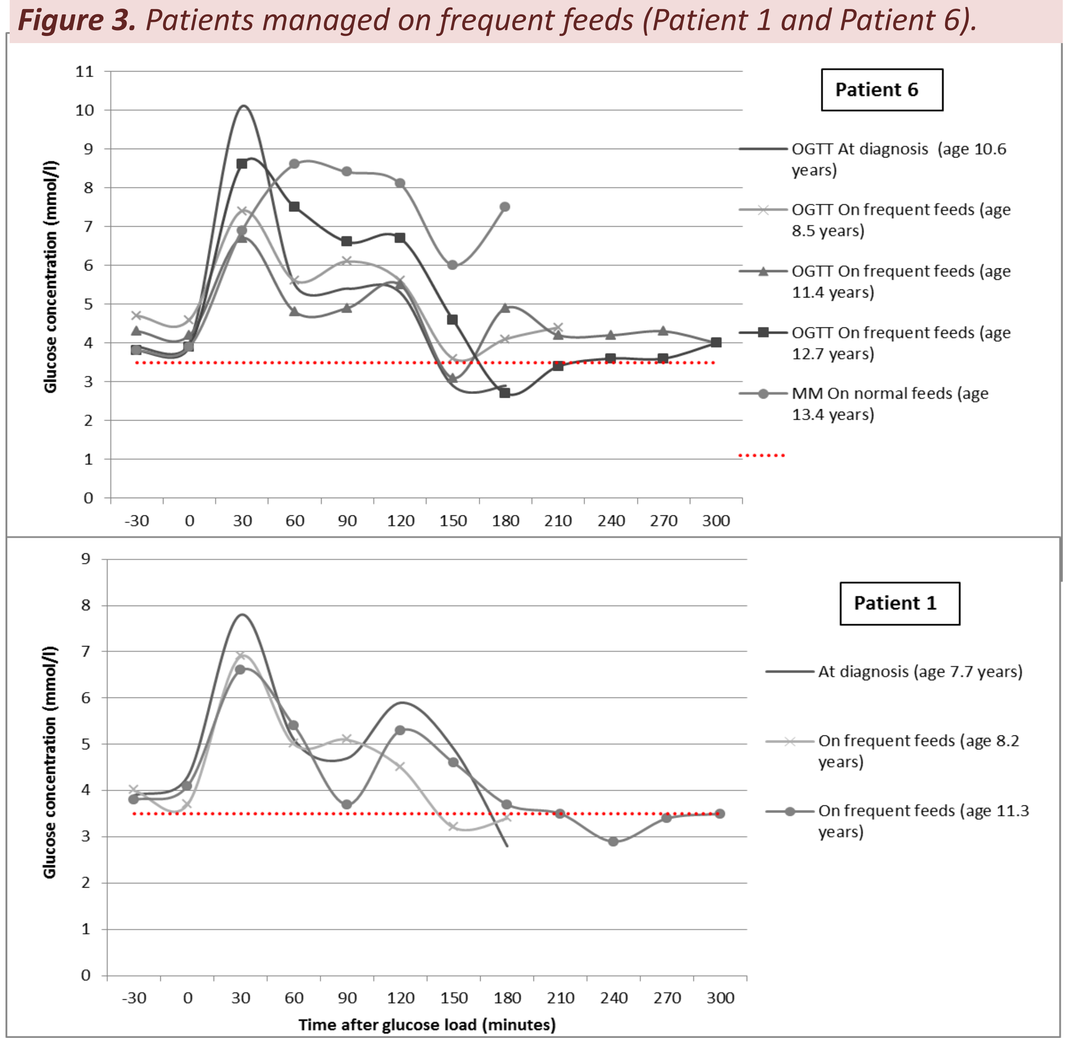


Figure 3. *Patients managed on frequent feeds (Patient 1 and Patient 6).*



Conclusion

Recognising hypoglycaemia in PPHH requires a prolonged OGTT. In those children with PPHH tried on acarbose, this proved to be beneficial although poorly tolerated. Patients managed exclusively on frequent feeds did demonstrate ongoing hypoglycaemia on prolonged OGTT. The aetiology of PPHH in these patients still needs to be deciphered.