Was it Growth hormone deficiency?

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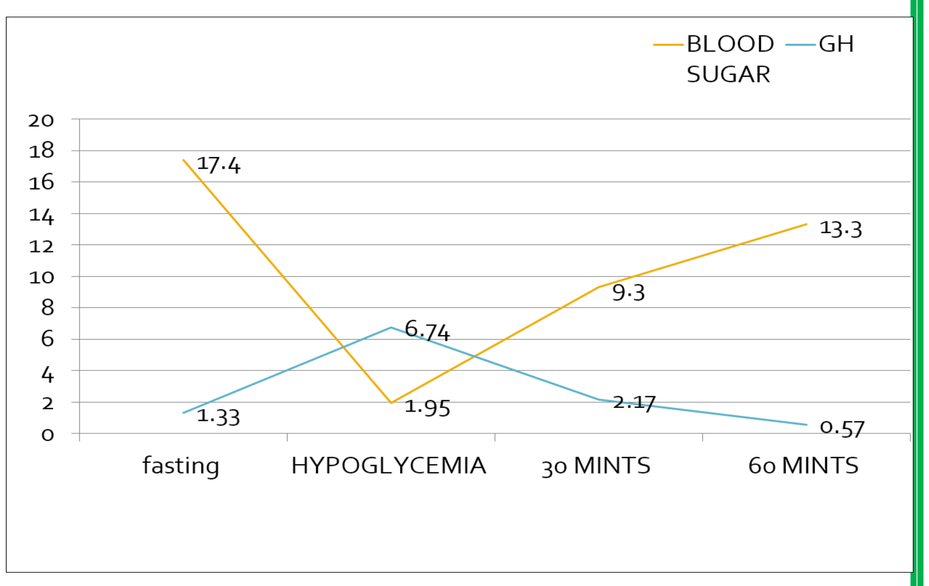
INTRODUCTION

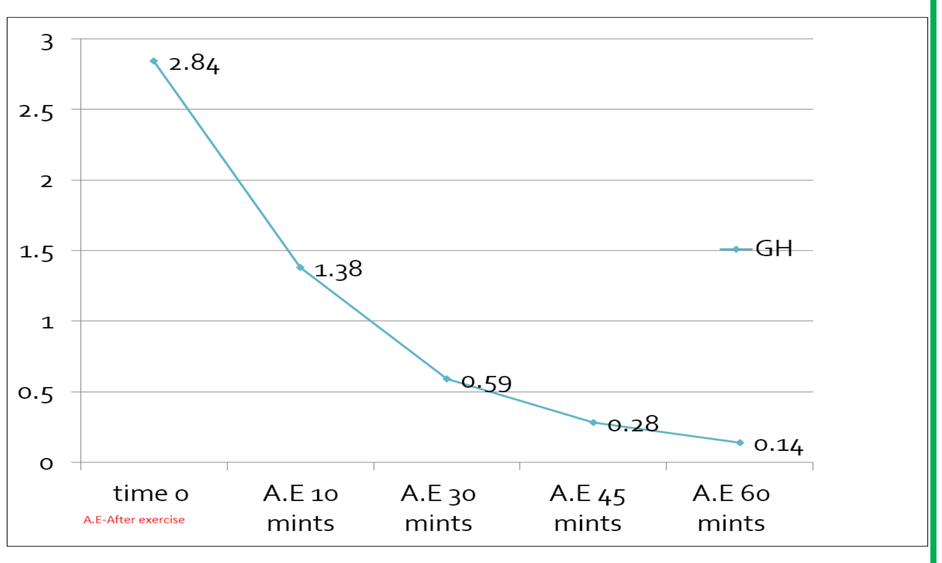
The short stature can be feature of uncontrolled diabetes due to low portal insulin levels causing decrement of IGF-1 and IGFBP-3 concentrations.

We present a case of short stature with Type 1 diabetes, who was found out to have growth hormone deficiency, which could have been affected by uncontrolled diabetes, his excess weight and delayed puberty.

INSULIN INDUCED GROWTH HORMONE TESTING(Figure 1)



EXERCISE INDUCED GROWTH HORMONE TESTING(Figure 2)



CONCLUSIONS

Uncontrolled Type1 diabetes is associated with growth hormone hypersecretion, Dawn phenomenon and suppression of IGF-1 and GHBP(Growth hormone resistance)[1]

GH deficiency may be falsely positive during GH dynamic testing in constitutional delay of growth & puberty and in obesity.

CLINICAL CASE

We describe the case of a 14 yrs old boy with Type 1 diabetes,who was admitted at our hospital in April,2017 for the evaluation of short stature.He was the youngest of the nine older,normal statured siblings and was the shortest amongst his class-mates.He had not started shaving,his voice was not cracking and had no morning erections.
The patient was diagnosed with Type 1 diabetes,2 years back.He never had ketoacidosis ,but his blood glucose had been largely uncontrolled.He was non-compliant to insulin and diabetic diet.Systemic review was unyielding
He was born through Caesarian section.The perinatal,developmental and nutritional histories were unremarkable.The patient was a student of Grade 9 with reasonable academic performance.
Type 1 diabetes and obesity were present amongst four and five of his family members,respectively.An elder brother had undergone sleeve gastrectomy.The patient had Anti-Insulin antibodies before the diagnosis of diabetes.
He was on Glargine insulin,35 units PM,Insulin Aspart 20 units AM & noon and 15 units PM and Glucagon,1 mg,PRN.

On examination,the patient was fully conscious,comfortable & co-operative.He was vitally stable.BMI 29 kg/m^2 (Height 145 cms,mid-parental height 173.5 cms).His height and weight were <5th percentile and 75th percentile for age,respectively General exam showed acanthosis nigricans at the nape of the neck only.Thyroid not enlarged.Tanner score 1 with pre-pubertal features.Rest of the general and systemic examination was unremarkable.

The complete blood count, liver & renal functions,bone & thyroid profile were unremarkable.HbA1c 89mmols/mmol(IFCC),Total Cholesterol 5.63 mmol/L,LDL 3.59 mmol/L,TG 1.95 mmol/L,HDL 1.15 mmol/L,Total Testosterone0.09 nmol/l,LH 0.4 IU/L, FSH 1.0 IU/L,S.Cortisol(AM) 133.7 nmol/l.Short Synecthen test-pending Celiac antibodies absent.
Growth hormone stimulation with insulin, clonidine and exercise indicated blunted GH responses(6.74 ,5.14,2.84 ng/ml,respectively)(Figures 1 & 2).IGF1-95 ng/ml(115-498).
His bone age was according to the chronological age.CT scan pituitary was normal.
The patient was started on 4IU,S/C,Growth hormone on alternate days and referred to the intensive insulin therapy clinic.

REFERENCES

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