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Research Article

Comparative Study between Levels of Igf-1 between Children with Growth Hormone Deficiency (GHD), Intrauterine Growth Retardation (IUGR), Turner Syndrome (TS) and Control Group (CG)

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Abstract

Insulin - like growth factor 1 (IgF-1), plays an important role in the growth of the child.

The aim of the prospective study was evaluate whether IgF-1 levels vary greatly in diseases that are indicated for daily growth hormone treatment such as GHD, IUGR, TS and compare with CG.

The results showed that IGF-1 mean values are low in children with GHD, IUGR and TS with 45XO karyotype.

More studies will be needed to conclude the true meaning of these results and their implications on the treatment and daily dose of growth hormone.

Keywords: *Igf-1; Growth Hormone Deficiency; Intrauterine Growth Retardation; Turner Syndrome; Control Group*

Introduction

Insulin - like growth factor 1 (IgF-1), plays an important role in the growth of the child.

Its production is stimulated by growth hormone and retarded by malnutrition, insensitivity and absence of growth hormone receptors.

Some factors may influence the determination of IgF levels, although fluctuations are small: time of day, age, gender, exercise, stress, body mass index, ethnicity, disease, and estrogen levels [1-4].

Aim

Evaluate whether IgF-1 levels vary greatly in diseases that are indicated for daily growth hormone treatment such as GHD, IUGR, TS and compare with CG.

Material and Methods

We evaluated the IgF- 1 levels of 12 children of adequate weight and height at gestational age (CG) - group 1, aged between 4 and 9 years (median - 6.0).

16 children with IUGR - group 2, aged between 3 and 9 years - median - 5.5, divided as follows:

Weight < P10 at birth - group 2A - five cases between the ages of 3 and 9 years - median - 5.2.

Stature < P 10 at birth - group 2B - five cases between the ages of 4 and 8 years - median - 5.4.

Weight and height < P 10 at birth - group 2C - six cases between the ages of 4 and 9 years - median - 6 years.

12 cases of children with GHD - group 3, aged between 4 m and 15 years - median - 7.5 years.

13 cases of TS - GROUP 4, aged between 3 and 15 years - median - 8, divided according to the type of karyotype:

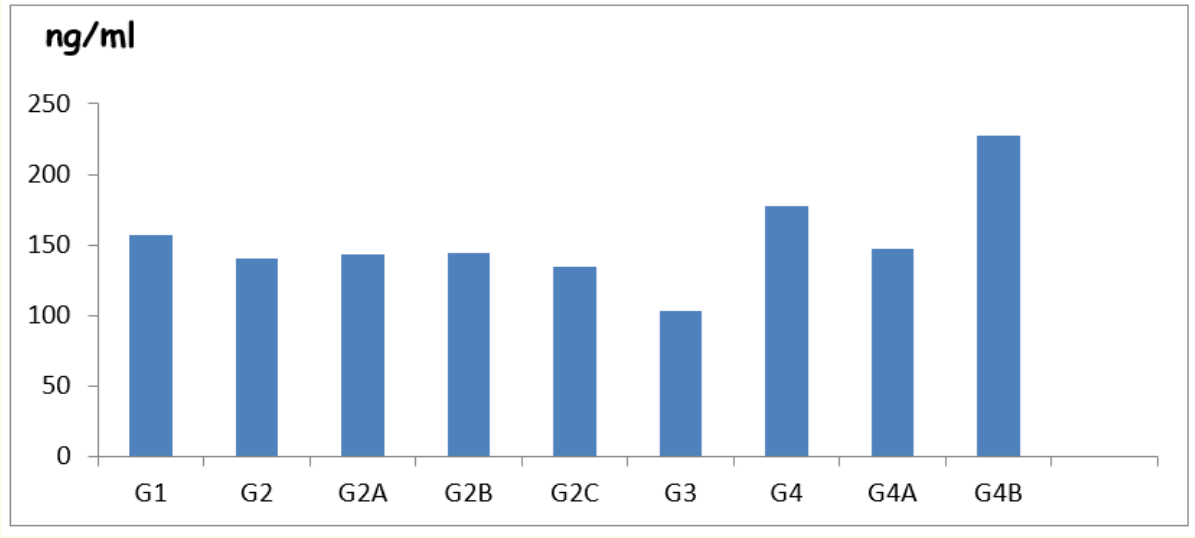
Karyotype 45, XO - GROUP 4A, eight cases between the ages of 3 and 15 years - median - 7.6.

Mosaic karyotype -GRUPO 4 B, five cases between the ages of 3 and 13 years - median - 8.4.

The IgF-1 results are in ng/ml and the assay method used was luminescence.

Results

The results are expressed in figure 1. IGF-1 mean values of control group, IUGR, GHD and Turner syndrome.



G1: Control; G2: IUGR; G2A: IUGR weight < P5; G2B: IUGR stature < P5; G2C: IUGR weight and stature < P5; G3: GHD; G4: TS; G4A: TS 45 XO; G4B: TS mosaic.

Discussion

The mean values of IGF-1, were lower than the control group in groups 2A, 2B and 2C (IUGR cases), 3 (GHD) and 4A (TS with karyotype 45, X0).

In relation to GROUP 3 - (GHD), the lowest values were as expected.

In IUGR groups, the lowest values were found in children weighing less than 10 percentile at birth.

In group 4A, (45XO karyotype), IGF-1 values are much lower than in group 4B, whose karyotype is mosaic for TS.

Conclusions

Our study shows that IGF-1 mean values are low in children with GHD, IUGR and TS with 45XO karyotype.

More studies will be needed to conclude the true meaning of these results and their implications on the treatment and daily dose of growth hormone.

In these cases it is necessary to consider treating with a higher dose of growth hormone.

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