P3-1145

Changes in body mass index during gonadotropin-releasing hormone agonist treatment in girls with idiopathic central precocious puberty

Hae Sang Lee[a], Jin Soon Hwang[a] & Eun Young Kim[b]

[a]Department of Pediatrics, Ajou University School of Medicine, Ajou University Hospital, Suwon, Korea
[b]Department of Pediatrics, Chosun University School of Medicine , Chosun University Hospital, Gwangju, Korea

INTRODUCTION

• Gonadotropin-releasing hormone agonist (GnRHa) has been widely used for decades to treat in patients with central precocious puberty (CPP).

• There are several studies concerning changes in body composition in CPP patients following GnRHa treatment, but the results are inconsistent.

•The aim of this study was to investigate the change of body mass index (BMI) in children treated with GnRHa for 2 years. Also, the present study was performed to assess whether BMI affects treatment outcomes.

METHODS

•This study included 231 CPP girls who were treated with depot leuprolide acetate monthly for at least 2 years.

•Subjects were divided into three groups based on BMI; the normal (BMI between the 5th and 85th percentile), overweight (BMI ≥85th percentile and BMI < 95th percentile), and obese groups (BMI ≥95th percentile).

•We analyzed the changes in BMI standard deviation score (SDS) during the GnRHa treatment period.

•Furthermore, a single luteinizing hormone (LH) obtained 30 minute after depot leuprolide acetate administration every six months to evaluate adequate hypothalamic-pituitary-gonadal axis suppression.

•CPP was defined as objective breast budding appearing before the age of 8 years, advanced bone age, and GnRH stimulated luteinizing hormone (LH) 5.0 IU/L on an immunoradiometric assay (IRMA).

RESULTS

• Before the initiation of therapy, BMI SDS was 0.019 ± 0.5, 1.3 ± 0.2, and 1.9 ± 0.1 among normal weight, overweight, and obese subjects (Table 1).

•After 2 years of the treatment, mean BMI SDS was significantly increased in normal weight children (0.019 ± 0.5 vs. 0.2 ± 0.57, *P* <0.001), although obese and overweight children were not significantly different in mean BMI SDS in the course of 2 years (Fig.1)

• The frequency of overweight and obese patients increased from 22.4% to 27.4% after 2 years of treatment with GnRHa.

•But, Single LH levels of 30 minutes after leuprolide injection at 2 years of treatment were not significantly different among normal weight, overweight, and obese subjects (0.32 ± 1.83, 0.17 ± 0.21, 0.12 ± 0.09 IU/L, respectively, *P*=0.646 for all comparisons).

Table 1. Baseline characteristics of study subjects stratified by BMI before treatment

Variable	Normal (n=145)	Overweight (n=59)	Obese (n=27)	*P* value
Age at diagnosis (year)	8.3 ± 0.6	8.3 ± 0.6	8.2 ± 0.6	0.702
Height SDS	0.7 ± 0.9	0.9 ± 0.8	1.2 ± 0.6	0.009
Weight SDS	0.3 ± 0.6	1.3 ± 0.3	1.9 ± 0.3	<0.001
BMI SDS	0.0 ± 0.5	1.3 ± 0.2	1.9 ± 0.1	<0.001
Tanner stage for Breast	2.0 ± 0.5	2.2 ± 0.5	2.5 ± 0.7	<0.001
Bone age(year)	9.9 ± 1.1	10.0 ± 1.0	10.2 ± 1.0	0.037
Bone age SDS	3.2 ± 1.3	3.7 ± 1.1	3.9 ± 1.0	0.007
BA-CA (year)	1.6 ± 1.0	1.9 ± 0.8	2.0 ± 0.7	0.012
Peak LH (mIU/mL)	12.6 ± 14.7	10.9 ± 6.2	9.1 ± 4.4	0.316
Peak FSH (mIU/mL)	13.1 ± 5.1	12.5 ± 4.9	12.0 ± 2.8	0.396

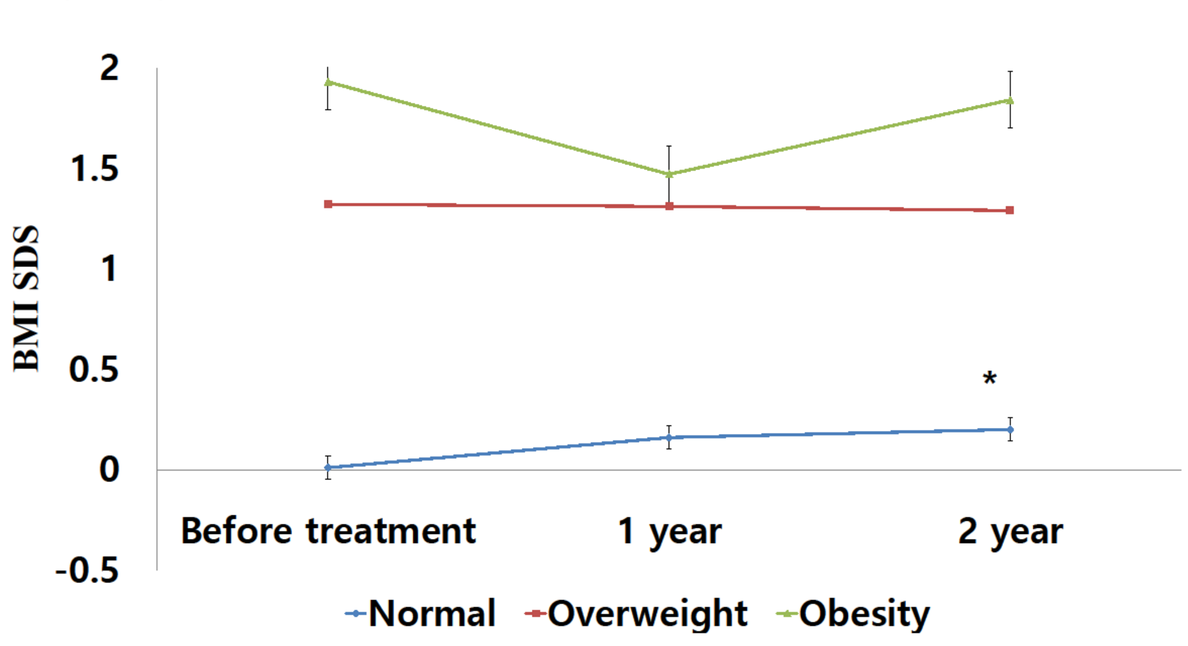

Fig. 1. Changes in the BMI SDS during GnRH agonist treatment. * P<0.05 compared to before treatment

CONCLUSION

In our study, the BMI SDS was only significantly increased after 2 years of treatment in normal weight CPP girls. Adequate education concerning lifestyle and diet during GnRHa treatment is needed.

ESPE 2015 1145--P3
Puberty
Hae Sang Lee
DOI: 10.3252/pso.eu.54espe.2015
Poster presented at: ESPE 2015 BARCELONA