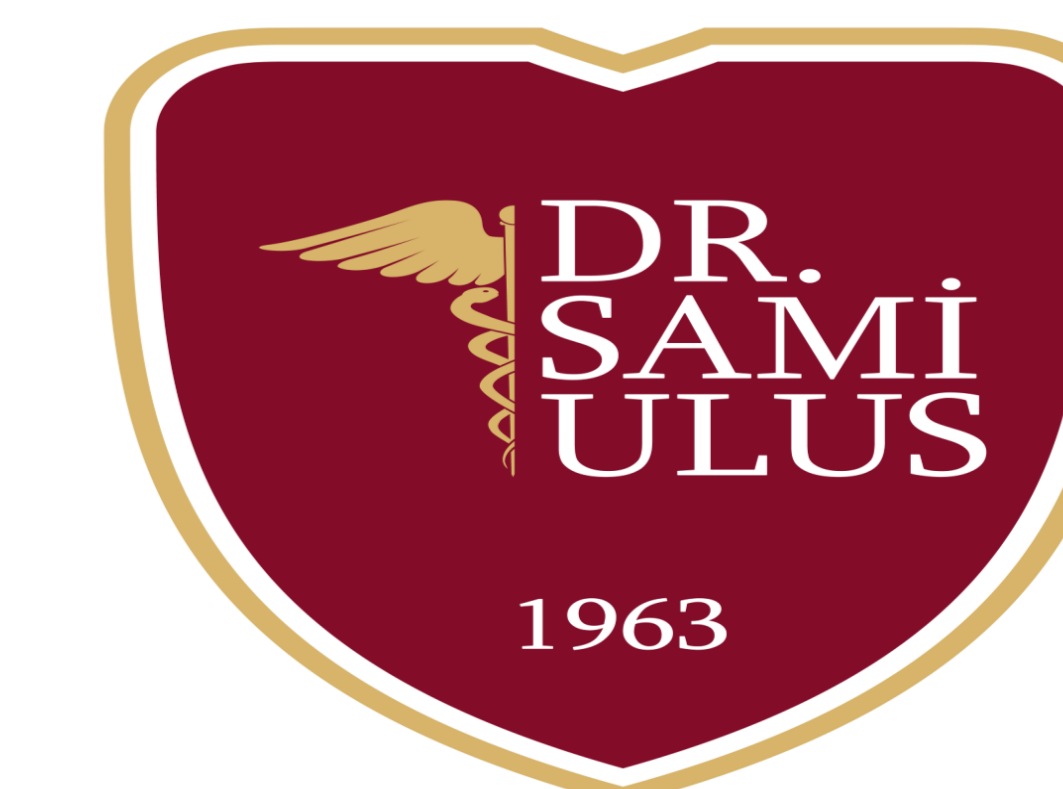


Did Central Precocious Puberty Increase in COVID 19 Pandemic?

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INTRODUCTION

Central precocious puberty (CPP) is the onset of secondary sexual characteristics before the age of eight in girls and 9 in boys, with the activation of the hypothalamic-pituitary-gonadal axis and the pulsation of gonadotropin-releasing hormone (GnRH)¹. The timing of puberty in children is occurring at an increasingly early age.

AIM

During the COVID-19 pandemic period, children experienced changes such as epidemic stress, sedentary life, and weight gain. We aimed to make a retrospective evaluation of the incidence of newly diagnosed central precocious puberty (CPP) during the first months of COVID-19. And to compare these corresponding data with the previous year.

METHOD

The files of 57 patients who were started GnRH analogue treatment with a diagnosis of CPP between April 1-July 1 2019 (group 1) and April 1-July 1 2020 (group 2) were retrospectively analyzed. We collected and evaluated the auxological, clinical, endocrinological and radiological data in all groups.

RESULTS

27 patients in group 1 (26 female, 1 boy) and, 30 patients in group 2 (28 female, 2 boys) were diagnosed CPP. The mean ages at the time of diagnosis for Group 1 and 2 were 8.43±1.27 and 7.87±1.11 years, respectively (p.0,026). The mean bone ages at diagnosis for Group 1 and 2 were 9.71±1.85 (3.8-13) and 8.72±1.56 (5.5-12) years, respectively (p.0,024). The mean ages of treatment initiation for Group 1 and 2 were 8.94±0.88 (6.8-9.9) and 8.07±1.11 (4.8-10) years, respectively (p.0,001). The mean birth weights for Group 1 and 2 were 2950±1100 (2300-3400) and 3180 ± 717 (870-3820) grams, respectively (p.0,012) (The SGA case number for Group 1 and 2: 4 and 2). The stage 3 breast development at the diagnosis time was found 57% in Group 1. The stage 2-3 breast development at the diagnosis time was found 64% in Group 2 (p.0.009). Family history, follow-up time, weight SDS, height SDS and BMI SDS values, pubic hair staging, basal LH, basal E2, peak LH values to LHRH stimulation and ovarian volumes at the beginning of treatment were found to be similar in all groups, but the uterine length was higher in Group 2 (p: 0.09). Other results of the patients are given in Table 1. In a study, it was found that CPP cases increased and pubertal progression accelerated during the COVID-19 period, and it was thought that this situation might be triggered by environmental factors (such as BMI, electronic device use).

².In our study, there was no increase in CPP cases during the initial period of COVID-19.

	Group1 (n:27) (min-max)	Group2 (n:30) (min-max)	p value
Age at presentation (AP) (year)	8.43±1.27 (3.8-9.8)	7.87±1.11 (4.8-10)	0.026*
Bone Age (BA) (year)	9.71±1.85 (3.8-13)	8.72±1.56 (5.5-12)	0.024*
Δ BA-AP(year)	1.27±1.00 (-0.58 – 3.67)	0.84±0.87 (-0.67 – 3)	0.126
Treatment onset age (year)	8.94±0.88 (6.8-9.9)	8.07±1.11 (4.8-10)	0.001*
Body weight (kg)	36.1±11.6 (13.7-61.3)	30.4±6.9 (18.2-47.1)	0.063
Body weight SDS	1.18±1.24 (-1.3-3.8)	0.87±0.80 (-0.7-2.4)	0.337
Height (cm)	135.76±9.37 (121.2-151.4)	123.82±25.71 (103-143.3)	0.010*
Height SDS	0.89±1.14 (-1.58-2.93)	0.56±1.04 (-1.38-2.49)	0.258
BMI (kg/m ²)	19.47±3.64 (14.32-28.30)	17.97±2.32 (14.10-24.77)	0.176
BMI SDS	0.97±1.04 (-0.88 – 2.86)	0.72±0.83 (-1.06 – 2.33)	0.371
Basal FSH (mIU/ml)	3.39±1.54 (1.4-5.7)	2.94±0.95 (1.1-4.6)	0.023*
Basal LH (mIU/ml)	1.20±1.25 (0.1-3.9)	0.61±0.83 (4.2-18.9)	0.086
Basal E2 (pg/ml)	13.95±3.71 (11.8-21.2)	16.54±8.54 (10-44.2)	0.576
LHRH test peak LH(mIU/ml)	5.03±3.66 (1.4-10.6)	8.62±4.48 (4.2-18.9)	0.095

Table 1 : Clinical data and laboratory results of groups

CONCLUSIONS

During the COVID 19 pandemic period, it was found that the age of initiation of CPP treatment was earlier. However, no significant factor, such as obesity, was found to be effective on CPP. In our single center experience, COVID 19 did not have a significant effect on CPP. It was thought that the evaluation of these issue with larger series is needed.

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