P1-137 Brain MRI Findings in Girls with Central Precocious Puberty in Taiwan: one medical center experience

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Background

Central precocious puberty is defined by the onset of breast development before the age of 8 year in girls. Approximately 90% of girls have an idiopathic form without structural central nervous system (CNS) abnormality. It is controversial that all girl with central precocious puberty (CPP) should undergo brain magnetic resonance imaging (MRI) for intracranial pathology. To evaluate the outcome of brain MRI in girls with CPP and to identify the clinical and endocrine predictors of brain abnormalities.

Patients and Methods

This is a retrospective study conducted in Chang Gung Children's Hospital, between 1997 and 2017. 403 girls were consecutively diagnosed with CPP and 250 girls completed brain MRI study with detailed examination of hypothalamus and pituitary area. Patients with previous CNS insults, endocrinopathy or associated neuropsychiatric symptom/signs were excluded. Prevalence of brain abnormalities at MRI scan was measured. Demographic data including onset of puberty, initial pubertal status, height and weight, uterus and ovaries size measured by ultrasound, basal LH, FSH, Estradiol and the result of LHRH test was record.

Results

Brain MRI showed no alterations in 189 (75.6%), abnormalities of hypothalamic-pituitary area unrelated in CPP in 54(21.6%).

Only one girl (0.4%) had pathological MRI findings of hypothalamic hamartoma. 24.4% of girl with CPP has new diagnosed intracranial pathology and most of them are incidentalomas.

The reported CNS alterations detected at diagnosis, except harmatoma, are as follows: pituitary microadenoma(12%), Cyst of pituitary pars intermedia(4.4%), Rathke's pouch cyst(2%), pituitary hypoplasia(1.6%), non-H-P arachnoid cysts(1.6%), pineal gland cyst(0.8%) and pituitary adenoma(0.4%). In our study, MRI follow-up was continued in 73.77% of cases, and did not show any progression or enlargement of the lesions. The lesions even disappeared in 19.67% of cases during follow-up. None of the girls with incidentaloma had other hormonal abnormality, nor did them underwent surgery. Girls with organic CPP had younger age of pubertal onset, early menarche, increased weight SDS, higher level of basal LH and estradiol, compared to girls with ICPP.

Conclusion

Only one in 250 (0.4%) of cases without prior symptom/signs of CNS lesions had true pathological MRI lesion (Hypothalamic hamartoma) that related to CPP. Among those with non-specific incidental findings of Brain MRI, none had progressively enlargement of lesion in 73.77% during 0.5-14 years follow-up. 19.67% had lesion resolution.