

内分泌与代谢疾病研究

特发性中枢性性早熟女孩下丘脑垂体核磁共振和血清胰岛素样生长因子-1检测的临床意义

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摘要:

目的 探讨特发性中枢性性早熟(ICPP)女孩下丘脑垂体核磁共振(MRI)检查和血清胰岛素样生长因子-1(IGF-1)测定的临床诊断意义。
方法 选取2007年2月至2009年12月在山东大学附属省立医院儿科内分泌门诊就诊的ICPP女孩患者60例,其中早期ICPP组8例,典型ICPP组36例,ICPP合并生长激素缺乏(GHD)组16例,收集所有患者空腹血清。3组均采用放射免疫法(RIA)测定空腹血清IGF-1和生长激素(GH)水平。免疫化学发光法(ICMA)测定空腹血清促卵泡刺激素(FSH)、促黄体生成素(LH)、雌二醇(E2)、促性腺激素释放激素类似物(GnRHa)刺激后峰值LH及峰值LH/FSH,ICPP合并GHD组加做生长激素(GH)刺激实验。行下丘脑垂体部位的头颅MRI(测量垂体前叶高度并根据Elster方法将其分级)、妇科B超、骨龄(BA)等检查。另外选取30例青春前期女孩作为正常对照组。对3组的上述指标进行比较,分析所测定的血清IGF-1、E2、基值LH、基值LH/FSH、峰值LH、峰值LH/FSH、骨龄与足实年龄差值(BA-CA)与垂体前叶高度的相关性。结果 早期ICPP组血清E2、峰值LH、峰值LH/FSH、CA、BA-CA均显著低于典型ICPP组($P < 0.01$);早期ICPP组和典型ICPP组的垂体前叶高度及血清IGF-1均显著高于正常对照组($P < 0.01$),早期ICPP组及典型ICPP组比较无明显差异($P > 0.05$);GnRHa对早期ICPP有显著治疗效果;血清中IGF-1、E2、基值LH、基值LH/FSH、峰值LH、峰值LH/FSH、BA-CA分别与垂体前叶高度之间存在显著的正相关($r = 0.65, 0.54, 0.54, 0.45, 0.58, 0.57, 0.45, P < 0.05$);典型ICPP组BA-CA、垂体前叶高度、IGF-1均显著高于ICPP合并GHD组($P < 0.01$),峰值LH及峰值LH/FSH显著高于ICPP合并GHD组($P < 0.05$);垂体前叶高度及IGF-1在ICPP合并GHD组均显著低于正常对照组($P < 0.01$)。结论 下丘脑垂体MRI和血清IGF-1对ICPP女孩的早期和鉴别诊断具有重要临床意义,下丘脑垂体MRI与下丘脑-垂体-靶腺轴联系密切。

关键词: 特发性中枢性性早熟;女孩;下丘脑垂体;核磁共振;胰岛素样生长因子-1;临床诊断

the importance of hypothalamus-pituitary region magnetic resonance imaging (MRI) and serum insulin-like growth factor-1 (IGF-1) in the clinical diagnosis of girls with idiopathic central precocious puberty

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Abstract:

Objective To study the importance of hypothalamus-pituitary region magnetic resonance imaging (MRI) and serum insulin-like growth factor-1 (IGF-1) in the clinical diagnosis of girls with idiopathic central precocious puberty(ICPP).
Methods 60 ICPP female patients diagnosed between February 2007 and December 2009 were selected from Department of Pediatric Endocrinology, Provincial Hospital Affiliated to Shandong University. Fasting serum was collected from the early ICPP group with 8 patients, the typical ICPP group with 36 patients and the ICPP associated with growth hormone deficiency(GHD) group with 16 patients. IGF-1 and growth hormone (GH) were detected by radio immune assay (RIA), and (Omin) FSH, LH, E2, the peak of LH and LH/FSH after the stimulation of GnRHa were detected by immunochemiluminometric assays(ICMA). In the ICPP associated with GHD group, Growth Hormone Stimulation Test was plused. The MRI of the hypothalamus and the pituitary gland (the anterior pituitary height was measured and classified to 5 grades by Elster), the ultrasound of ovaries and uterus, the bone age(BA)were observed. 30 healthy prepuberty girls were selected as the contrast group. All the indicators above were compared among the three groups. The relevance between the anterior pituitary height and the fasting serum IGF-1, E2, basal LH and LH/FSH, peak LH and LH/FSH, the difference between BA and chronological age(BA-CA) was analyzed. Results Serum E2, peak LH and LH/FSH, CA, (BA-CA) in the early ICPP group were significantly lower than those in the typical ICPP group ($P < 0.01$). Compared with those of the control group, the anterior pituitary height and the IGF-1 in the typical ICPP group and the early ICPP group were both significantly higher ($P < 0.01$). The anterior pituitary height and the IGF-1 in the two groups showed no significant difference ($P > 0.05$). GnRHa treatment had significant effect on the early ICPP group. The anterior pituitary height showed a significant linear positive correlation with fasting serum IGF-1, E2, basal LH and LH/FSH, peak LH and LH/FSH, (BA-CA) ($r = 0.65, 0.54, 0.54, 0.45, 0.58, 0.57, 0.45, P < 0.05$). In the typical ICPP group, (BA-CA), the anterior pituitary height and the IGF-1 were significantly higher than those in the ICPP associated with GHD group ($P < 0.01$), the peak LH and LH/FSH were higher than those in the ICPP associated with GHD group ($P < 0.05$). Compared with those in the control group, the anterior pituitary height and the serum IGF-1 in the ICPP associated with GHD group were significantly lower ($P < 0.01$). Conclusion The value of MRI and IGF-1 is significant in the early diagnosis of ICPP girls and the differential diagnosis between ICPP and ICPP associated with GHD girls. MRI is closely related to the functions of the hypothalamus-pituitary-gonad axis.

Keywords: Idiopathic central precocious puberty; Girl; Hypothalamus-pituitary; Magnetic resonance imaging; Insulin like growth factor 1; Clinical diagnosis

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