

Diagnostic value LH and FSH levels in female patients with central hypogonadism

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Central hypogonadism (CH) is a syndrome that can be revealed in women with amenorrhea due to hypoestrogenemia and lack of normal response of gonadotropins to hypoestrogenemia in the absence of another reasons. It is often called hypogonadotropic hypogonadism, however, LH and FSH levels within reference range do not exclude CH because insufficiency of impulse secretion can appear despite normal basal secretion. The diagnostic criteria for CH are still unclear.

Materials and methods: LH and FSH levels in 46 amenorrheic women with proven idiopathic CH and 38 healthy women with regular ovalutory menstrual cycle (tested in early follicular phase) were analyzed. Among patients there were women who suffer from primary and secondary amenorrhea; reasons for secondary amenorrhea were stress, excessive physical exercises, rapid body weight loss, past use of oral contraceptives.

Results: decreased levels of LH (0,09-1,5 ME/l) and FSH (0,05-1,32 ME/l) were found in 15 (32.6%) patients with CH, normal gonadotropins levels – in 12 (26,1%) patients (LH 1,7-7,4 ME/l and FSH 2,5-7,29 ME/l), low LH (0,25-1,5 ME/l) and normal FSH (2,6-6,5 ME/l) – in other 19 cases (41,3%). Notably, combination of normal LH and low FSH was not observed in any case. In healthy women LH levels were 1,8-12,1 ME/l and FSH levels 3-9,5 ME/l.

During statistical analysis it was identified that LH level $\geq 1,9$ ME/l pointed to central genesis of hypogonadism with sensitivity 78,26% and specificity 94,59%. LH level $\geq 2,6$ ME/l characterized by similar sensitivity but lower specificity (83,78%). FSH level $\geq 5,05$ ME/l showed sensitivity 74,55% and specificity 76,32% for CH diagnosis. Both LH and FSH levels were also analyzed with aim to found common clipping diagnostic point. Value of LH-FSH combined index was similar to diagnostic value LH level without FSH: AUC ROC curve for combined analysis of LH-FSH 0,897 and for LH only 0,896.

Conclusion: According to our results, LH level had higher diagnostic value for determination of central genesis of female hypogonadism in compare with FSH. LH level $\geq 1,9$ ME/l can be considered as diagnostic criterion for central hypogonadism with sensitivity 78,26% and specificity 94,59%.

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