Abstract citation ID: bvac150.082

Adrenal

LBODP006

Clinical Usefulness Of The Growth Hormone-releasing Peptide-2 Test For Hypothalamic-pituitary Disorder

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Purpose: Growth hormone deficiency (GHD) develops early in patients with hypothalamic-pituitary disorder and is frequently accompanied by other anterior pituitary hormone deficiencies including secondary adrenal insufficiency (AI). A growth hormone-releasing peptide-2 (GHRP2), which is wildly used for the diagnosis of patients with GHD, has been considered to induce not only growth hormone (GH) release but also ACTH release. However, its clinical usefulness in hypothalamic-pituitary disorder is unclear. **Methods:** The GHRP2 test, a cosyntropin stimulation test, corticotropin-releasing hormone (CRH) tests and/or insulin tolerance tests (ITTs) were performed on 36 patients having hypothalamic-pituitary disorder. **Results:** Twenty-two (61%) had severe GHD, and 3 (8%) had moderate GHD by GHRP2. There was no difference in baseline ACTH and cortisol between non-GHD, moderate GHD and severe GHD participants. However, a cosyntropin stimulation test and subsequent CRH tests and/or ITTs revealed that 17 (47%) had secondary AI and 16/17 (94%) cases of secondary AI were concomitant with severe GHD. ROC curve analysis demonstrated that the ACTH response in the GHRP2 test was useful for screening pituitary-AI, with a cut-off value of 1.55-fold (83% sensitivity and 88% specificity). Notably, the combination of ACTH response and the peak cortisol level in the GHRP2 test using each cut-off value (1.55-fold and 10 μg/dl, respectively) showed high specificity (100%) with high accuracy (0.94) for diagnosis of pituitary-AI. **Conclusion:** We recommend measuring ACTH as well as GH during the GHRP2 test to avoid overlooking and delays in diagnosis of secondary AI that frequently accompanies GHD.

Presentation: No date and time listed