The relationship between pituitary hormone levels and magnetic resonance imaging findings in diabetes insipidus patients

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Objectives:

Diabetes insipidus (DI) is a water metabolism disorder caused by antidiuretic hormone pathologies. Central diabetes insipidus (CDI), characterized by polydipsia and polyuria due to vasopressin deficiency, is familial, idiopathic or secondary MR imaging is the modality of choice for evaluating central diabetes insipidus due to its multiplanar imaging capability, better tissue contrast resolution and capability to selectively suppress individual tissue signal like fat. Also,the clinical course of the disorder is associated with T1-weighted MRI changes.

In this study, we evaluated, retrospectively,pituitary hormone profiles and pituitary magnetic resonance imaging (MRI) findings of patients with DI.

Methods:

After local ethic committee approval, 300 patients were evaluated retrospectively. Patients with a history of pituitary surgery and/or radiotherapy were excluded. Luteinizing hormone (LH), Follicule stimulating hormone (FSH), estradiol (E2), prolactin (PRL), total testosterone (TT), thyroid stimulating hormone (TSH), free thyroxine (fT4), free triiodothyronine (fT3), creatinine, sodium, potassium levels and MRI findings were recorded. Totally data of 34 patients were evaluated. SPSS 20.0 was used for statistical analysis.

Results:

24 female (%70.6) and 10 male (%29.4) patients were included into the study. Potassium levels were found significantly related with FSH (p = 0.011), LH (p = 0.030) and posterior pituitary brightness loss in MRI (p = 0.027). fT3 was significantly associated with pituitary height (p = 0.015) and posterior pituitary brightness loss (p = 0.027). Moreover, fT4 was found significantly related with pituitary stalk thickness (p = 0.025) and posterior pituitary brightness loss (p = 0.007). Glucose, urea, creatinine and urinary osmolality were found significantly different between male and female patients. Urea, creatinine, glucose and urinary osmolality values were found higher in men by comparison women.

Conclusions:

Hormonal levels,biochemical levels and imaging techniques are used together for the diagnosis of DI. The interrelation between these tests should be taken into consideration while evaluating patients who are suspected as DI because the pathologies of the laboratory tests can sometimes give clues about the pathologies of the imaging studies.

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