





N-terminal pro-brain natriuretic peptide in adrenocortical insufficiency: a case report

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Introduction: Myocytes produce brain natriuretic peptide (BNP) or N-terminal pro-brain natriuretic peptide (NT-proBNP) in response to cardiac wall stretching. It is clinically used as a diagnostic and prognostic biomarker for heart failure. Since the mentioned peptide and its fragments, as well as their respective receptors, are located in the entire central nervous system, it seems that they could be involved in the regulation of the hypothalamic-pituitary-adrenocortical (HPA) axis.¹

Case report: We present the case of 21-year-old patient with clinical picture of severe adrenocortical insufficiency and hypogonadism. So, hydrocortisone replacement therapy was immediately introduced. Due to the suspicious ECG findings, cardiac testing was performed. The ECG changes were perceived as changes within the juvenile ECG findings. Initial value of NT-proBNP was elevated (4252 pg/ml). In the cardiac ultrasound, a discrete anterior mitral valve leaflet prolapse was found with trace mitral regurgitation and an EF of 76%. Since introduction of hydrocortisone replacement therapy, NT-proBNP values were being controlled repeatedly and they were gradually reduced (1534-706-338 pg/ml) within two week. With regard to the presence of hypogonadism, a testosterone replacement therapy was introduced two weeks later. After 3 weeks of combined replacement therapy the levels of NT-proBNP were completely normalized (40 pg/ml), and a general improvement of the patient's state was observed. Amir *et al.*² showed in a group of male students that, in response to academic stress, the increase in plasma cortisol concentration is associated with the lowering of NT-proBNP levels. This data may indicate that mental stress implies an interaction between the HPA axis and the peripheral natriuretic peptide system, leading to reciprocal changes in the circulating levels of the corresponding hormones. Also, Chang *et al.*³ is hypothesized that androgens suppress the secretion of the natriuretic peptide. The circulating levels of NT-proBNP are higher in women than in men. A study with young women without cardiac disease has shown, that free testosterone is independently inversely proportional to the levels of BNP or NT-proBNP.

Conclusion: Secretion of NT-proBNP is not only influenced by cardiac function, but also by activation of neurohormonal function and vice versa.

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LITERATURE

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