

PHYSIOLOGICAL PATTERN OF SECRETION OF URINARY NEUROTROPHINS IN HEALTHY MALE AND FEMALE VOLUNTEERS

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INTRODUCTION & OBJECTIVE: Despite prevalence and costs associated with lower urinary tract (LUT) dysfunction, the comprehension of underlying mechanisms is still challenging. Nerve Growth Factor (NGF) is elevated in the urine of patients with LUT dysfunction and decreases after treatment. Less is known about the role of Brain Derived Neurotrophic Factor (BDNF) in LUT function; despite urinary BDNF levels are high in patients with bladder pain syndrome.

To better understand the role of urinary NTs in LUT dysfunction, their levels should also be described in healthy individuals. Here, we describe urinary NGF and BDNF levels in healthy male and female volunteers, to investigate physiological pattern of secretion and gender differences.

METHODS: Urine samples from 40 healthy volunteers (20 men and 20 women) were collected in the morning, afternoon and evening. The procedure was repeated 3 months later. Urine samples were processed for ELISA analysis of urinary NGF and BDNF. The urine NGF and BDNF content was normalized against creatinine concentration. All volunteers completed Indevus Urgency Severity Scale (IUSS) and all males answered International Prostate Symptom Score (IPSS), to exclude LUT symptoms.

RESULTS: Urinary NGF/Cr and BDNF /Cr ratios were constantly low at baseline and 3 months, despite the time of the day of urine collection, denying the hypothesis of a circadian rhythm. Moreover, no statistical significant differences were found between male and female volunteers.

CONCLUSIONS: To our knowledge, this is the first comprehensive study of urinary NGF and BDNF in healthy volunteers. NGF/Cr and BDNF/Cr levels were systematically low, irrespective of gender or time of the day of urine sampling. These data allow a better understanding of NTs secretion in non pathological conditions and, consequently, a more accurate comprehension of their role in LUT dysfunction.