

ABSTRACT

Normotensive hydrocephalus (NPH) is a neurodegenerative disease that occurs mainly in patients of high age. The disorder causes accumulation of cerebrospinal fluid (CSF), which leads to enlargement of ventricles and pressure exerted on cerebral structures. Clinical manifestations (gait disorders, development of dementia, incontinence) can be easily confused with symptoms of other neurodegenerative diseases; unlike other such disorders, however, NPH can be treated by surgery, if diagnosed in time. Patients are indicated for the procedure by a lumbar drainage test. There are currently no reliable laboratory biomarkers known that could be the basis of NPH diagnostics. In the past, steroids proved to be linked to neuronal activity in neurodegenerative diseases with the help of specific diagnostic markers. An instrumental method has been developed for the purposes of this thesis and it was used to gauge the level of certain steroids in CSF in a sample group of NPH patients and a control sample group of healthy individuals. A significant difference has been found in levels of aldosterone and cortisone. Aldosterone was higher in NPH sufferers, while cortisone levels were higher in the control group. It is crucial to differentiate patients with NPH from patients with similar clinical manifestations during diagnostics (LDneg). The spectre of assessed analytes has therefore been expanded with other steroids and levels have been measured in both patient groups. The discovered concentrations only varied in dehydroepiandrosterone sulphate that was lower in NPH patients than in the LDneg group. The findings of the present thesis suggest a significant role of steroid hormones in laboratory diagnostics and following monitoring of NPH patients.

Key words: hydrocephalus, cerebrospinal fluid, steroid hormones, liquid chromatography, mass spectrometry