

Dysbalances of effective osmolality are some of the most frequent and serious complications in neurointensive care. Their severity lies in brain oedema in hyponatraemia and dehydration of the brain in hypernatraemia. Due to the seriousness of dysnatraemia in acute brain diseases, timely and accurate diagnosis is necessary. Nowadays this is easily achieved through measuring and calculating renal function parameters.

The aims of this study were 1) evaluation of hyponatraemia and hypernatraemia in acute brain diseases after establishing these renal parameters into clinical practice in our NNICU and 2) determining the significance of NT-proBNP in differential diagnostics of hyponatraemia.

Over a ten-year period, in a retrospective (1.1.1996 - 31.12.2000) and a prospective study (1.1.2001 - 31.12.2005) we evaluated all patients hospitalised in our NNICU with acute brain diseases, who had serum sodium below 135 mmol/l (collection hyponatraemia) or above 150 mmol/l (collection hypernatraemia). The prospective part took place according to standard protocol for diagnosing hyponatraemia and hypernatraemia in the NNICU, which includes the measuring and calculating of renal function parameters. In the prospective study, assessment of NT-proBNP was carried out on 40 patients with hyponatraemia. The control group consisted of 20 patients with acute brain disease and normonatremia. Measured and calculated renal function parameters represent an easy and accessible method in differential diagnostics of hyponatraemia and hypernatraemia in patients in neurointensive care. Differential diagnostics of hyponatraemia cannot be carried out without them, whereas in hypernatraemia where there is complete cDI it is possible. Due to the seriousness of dysnatraemia in acute brain diseases, their implementation in clinical practice ought to be a matter of course in all places where patients with acute brain diseases are treated.