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Tolvaptan use in hyponatremia: short-term observational outcome analysis

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Objectives: We investigated the safety and efficacy of tolvaptan in patients with severe hyponatremia, and checked the time course changes of urine volume, urine osmolality and serum sodium after treatment with tolvaptan.

Methods: We retrospectively reviewed the medical records of 37 patients (syndrome of inappropriate antidiuretic hormone (SIADH), n = 32; congestive heart failure, n = 5).

Results: Mean values of age was 70.5 ± 13.9 year, male 51.3%, estimated glomerular filtration rate, 92.6 ± 27.3 mL/min/1.73m^2. Short-term outcomes were favourable; 94.5% of the patients achieved treatment targets (serum sodium ≥ 135 mEq/L) within 7 days. The changes in urine osmolality and serum sodium concentrations were most prominent in the first 24 hours. Changes in urine osmolality were preceded by changes in serum sodium (mean change of urine osmolality from baseline to 4 hours; - 390.1 ± 91.2 mOsmol/kg, from baselin to 8 hours; - 173.3 ± 104.9 mOsmol/kg, from baselin to 24 hours; + 16.3 ± 88.5 mOsmol/kg, from baseline to 48 hrous; + 25.8 ± 121.0 mOsmol/kg, $p < 0.001$ vs. mean change of serum sodium from baseline to 4 hours; 1.7 ± 2.9 mEq/L, from baselin to 8 hours; 5.3 ± 7.4 mEq/L, from baselin to 24 hours; 7.7 ± 9.2 mEq/L, from baseline to 48 hrous; 11.8 ± 10.4 mEq/L, $p < 0.001$). The mean values in serum sodium level for 7 days were not different between SIADH and congestive heart failure group.Relapse of hyponatraemia occurred in 26% of the patients 23 days after stopping tolvaptan treatment.

Conclusions: This study confirms the safety and efficacy of tolvaptan in the treatment of hyponatraemia. Changes in urine volume and urine osmolality were preceded by changes in serum sodium after tolvaptan treatment, and which is important to mornitoring after tolvaptan treatment