Nephro-2013
OMICS Group Conferences
Accelerating Scientific Discovery
2nd International Conference on
Nephrology & Therapeutics
July 29-31, 2013 Embassy Suites Las Vegas, USA

Relowering sodium after overcorrection of chronic Hyponatremia: Save the brain

Alain Soupart
Erasmus University Hospital, Belgium

Abstract

Overcorrection of severe chronic hyponatremia can lead to the osmotic demyelination syndrome (ODS), a serious neurological complication potentially leading to catastrophic neurological complications or death. The exact incidence of this complication is unknown but is probably > 30% and it increases with the level of overcorrection. Brain adapts to changes in environmental osmolality and if correction is too fast, excessive brain dehydration and ODS occurs. Overcorrection is now considered as a medical emergency. No treatment is available. In animal study we showed that relowering the serum sodium (SNa) with DDAVP and hypotonic fluids in overcorrected rats dramatically reduced the incidence of ODS (9% vs 100%) and mortality (4% vs 80%). The benefit of this rescue manoeuvre is still obvious in symptomatic animals (ODS: 30% vs 100%; mortality: 53% vs 92%). However, clinical experience with this therapeutic approach is limited. We present a series of 14 patients with severe hyponatremia of various origins who were overcorrected and in whom sodium was relowered by combining DDAVP and hypotonic fluids. Seven cases were asymptomatic at time of sodium relowering (Group I) and the 7 others present previous neurological manifestations (Group II). In group I, mean ΔSNa was 16 ± 3 mEq/l/24hr at time of sodium relowering. Serum sodium level fell by -6 ± 1 mEq/l after DDAVP and hypotonic fluids administration. In group II, ΔSNa was 15 ± 5 mEq/l/24hr and mean decrease of serum sodium was -9 mEq/l and final correction was ΔSNa 12 ± 3 mEq/l/24hr. In both groups all patients recovered without neurological sequellae. We conclude that sodium relowering in patients with overcorrection of hyponatremia is an effective rescue manoeuver to prevent ODS, even when neurologic symptoms are already present.

Biography

Alain Soupart has completed his PhD from the Free University of Brussels and is a graduate in Internal Medicine (Erasmus University Hospital, ULB). He is co-director of the Research Unit for Hydromineral Metabolism, Free University of Brussels, Belgium. Professor Alain Soupart has published more than 60 papers in peer review journals.