



# CHRONIC INAPPROPRIATE ANTIDIURESIS IN CHILDHOOD: EXPERIENCE WITH TOLVAPTAN

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## BACKGROUND

The syndrome of inappropriate antidiuresis (SIAD) is one of the most common causes of hyponatremia: it's a disorder of sodium and water balance, characterized by urinary dilution impairment and hypotonic hyponatremia, in the absence of renal disease or any non-osmotic stimulus, able to induce antidiuretic hormone (ADH) release. SIAD can be manifestation of a wide range of diseases, including cancer, head trauma, hydrocephalus and epilepsy. Usually transient and self-limited, is easily controlled in the short term with fluid's restriction and sodium supplementation. More difficult is the management of the chronic SIAD, especially in children.

## AIMS AND OBJECTIVES

To report a case of a child with SIADH successfully treated with tolvaptan, an orally active vasopressin V2-receptor antagonist that promotes aquaresis.

## METHODS

The efficacy of tolvaptan was evaluated in a 4 years old child with chronic hyponatremia after surgery for suprasellar arachnoid cyst. Patient was assigned to oral tolvaptan at a dose of 3.75 mg daily (0.22 mg/Kg/day). Serum sodium concentrations achieved to 131-134 mEq/L and the drug was well tolerated, without any side effects. Therefore, the dose of tolvaptan was increased to 7.5 mg daily (0.46 mg/kg/day), based on serum sodium concentrations and kidney function.

## RESULTS

Aquaretic drugs induce an increase in urinary volume and urinary free water, associated with a decreased urinary osmolality with a consequent increase in plasma sodium. This belong to a family of vasopressin receptor antagonist, V2 in particular, that regulate tubular water reabsorption. Tolvaptan has increased serum sodium concentration, allowing liberalization of the water's introit and suspension of oral supplementation of NaCl.

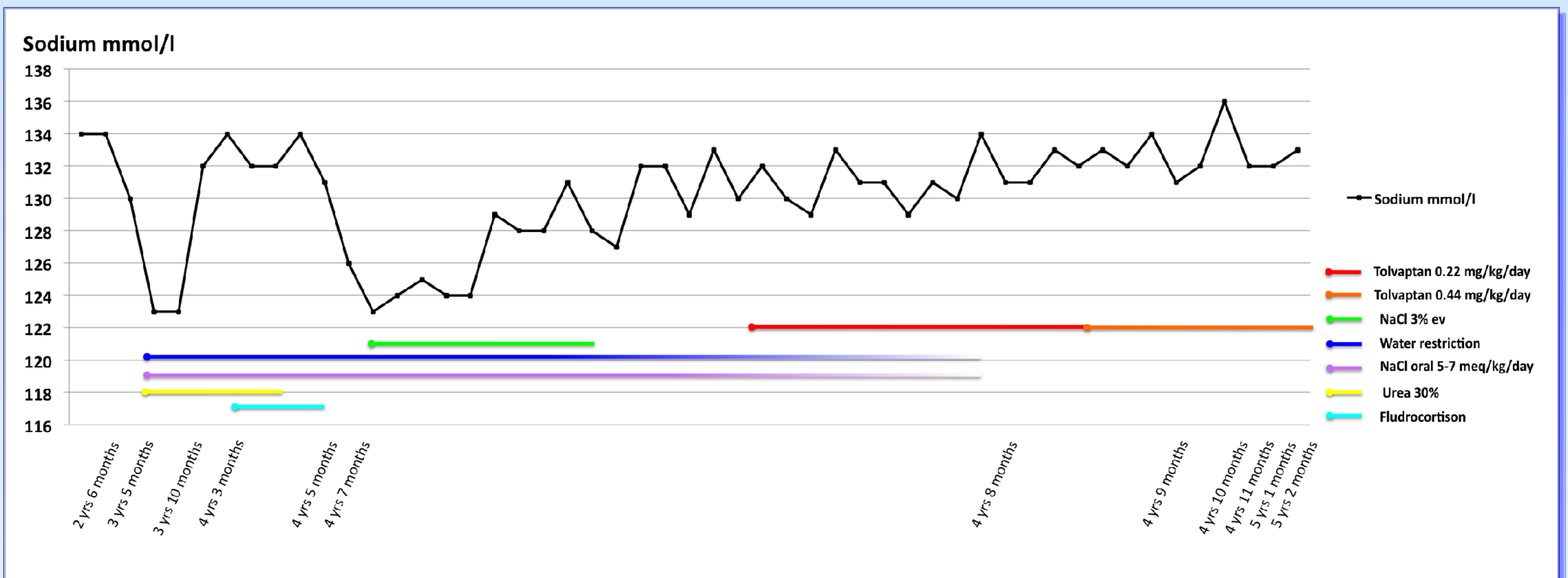


Diagram with the clinical course of our patient (sodium levels, drugs, sodium supplementation)

## CONCLUSIONS

In this patient with euvolemic hyponatremia, tolvaptan was effective in increasing and maintaining serum sodium concentrations, with values greater than 130 mEq/L, without side effects and allowing the child a free fluid intake and diet.