USE OF TOLVAPTAN IN A CHILD WITH SIADH POST PITUITARY SURGERY

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BACKGROUND

- Suprasellar mass and surgery of pituitary tumor is a challenge, in particular fluid management is critical.
- The triphasic response an initial phase of Central DI (CDI) followed by a second phase of transient Syndrome of Inappropriate Anti-Diuretic Hormone (SIADH) and the third and the final phase of permanent CDI.
- The gold standard for SIADH management is fluid restriction
- Fluid restriction and hypertonic saline may not be adequate to control the hyponatremia and water imbalance in SIADH
- V2 receptor antagonist (vaptans) act by the mechanism of competitive antagonism blocking the binding of ADH to V2 receptors in the renal collecting duct. This prevents free water absorption, thus increasing the urine output.

CASE DESCRIPTION

- A 15 yr old boy presented with history of progressive headache, ataxia, decreased vision and vomiting.
- On examination, there was bilateral nystagmus with bilateral papilledema.
- His weight was 93.2 kg (+4.2SDS).
- MRI head showed a posterior fossa tumor 7.7x3.4x3 cm along with a second lesion as a third ventricle tumor measuring 1.8x1.8x1.8 cm homogenous iso-to-hypointense on T2 weighted imaging.
- Cerebellar mass was removed and histopathology confirmed it to be a medulloblastoma
- A suprasellar mass around the pituitary stalk was also removed.
- The pre-operative and post-operative endocrine evaluation is shown in the table 1. ACTH suppressed (<1 pmol/L) with low cortisol 123 nmol/L. Hence, he was commenced on oral hydrocortisone.
- After 12 hours of surgery serum osmolality was high with low urine osmolality indicating DI and was managed with intravenous desmopressin.
- From post-operative day 5, the urine output started to fall and serum osmolality reduced with increased urine SIADH. Fluids were restricted to half the maintenance.
- By day 6 the fluid restriction was further reduced to 30% and 1.8% salinity. At this time a dose of furosemide was used showing no response.
- Hence, a single dose of oral tolvapan (15 mg) was given following which the serum sodium and osmolality steadily improved with increase in the urine output and drop in the urine osmolality as shown in Fig 1 & 2.
- From day 8 urine osmolality reduced and there was polyuria, hypernatremia with high serum osmolality.
- Suggestive of DI and oral desmopressin was started and optimized to 120 mcg twice daily.

CONCLUSIONS

- We present a patient of post-suprasellar mass surgery presenting with the triphasic phenomenon of water imbalance where the phase of transient SIADH was successfully managed with Tolvaptan.
- Tolvaptan can be a potential treatment option in SIADH resistant to water restriction and hypertonic saline imbalances where the phase of transient SIADH is indicated in the graph.

REFERENCES


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Table 1. Pre-operative (suprasellar mass removal) and Post-operative endocrine biochemistry of the child