Treatment of Hyponatremia in Cirrhosis

E Gorospe

Citation

E Gorospe. *Treatment of Hyponatremia in Cirrhosis*. The Internet Journal of Gastroenterology. 2008 Volume 7 Number 2.

Abstract

Letter to the Editor

In his review article, Dr. Mahesh [1] discussed the pathophysiology and management of hyponatremia in patients with cirrhosis and ascites. He noted hyponatremia as a problematic complication in cirrhotic patients. Recent studies strongly support this contention. Among patients with liver disease, hyponatremia is recognized as a predictive factor of poor quality-of-life and early death, independent of liver function tests, Child-Pugh criteria and Model for End-Stage Liver Disease scores [2, 3].

Dr. Mahesh presented a clear and stepwise approach in managing hyponatremia in this challenging patient population. His approach starts with modest water restriction, followed by withholding of loop diuretics and strict fluid restriction once plasma sodium drops below 126 meq/L [1]. He also briefly mentioned other treatment strategies. In the last paragraph, he stated: “vasopressin receptor analogues, demeclocycline etc have been tried, but no definite benefit”. I think the above statement is a typographical error. I believe that Dr. Mahesh was pertaining to vasopressin receptor antagonists and not to vasopressin receptor analogues, as published. Vasopressin receptor analogues have never been used to treat hyponatremia.

On the other hand, vasopressin receptor antagonists, also called vaptans, are beginning to be recognized as effective and safe pharmacologic agents in euvolemic and hypervolemic hyponatremia such as in the case of cirrhosis with ascites [4]. Vaptans are non-peptide, arginine-vasopressin-receptor antagonists. They are orally and intravenously active. They work by antagonizing the effects of Arginine Vasopressin or Anti-Diuretic Hormone. This improves solute-free water excretion in the renal tubules [5]. Gines et al. [6] have shown improved serum sodium concentration in patients with cirrhosis after the first day of vaptan therapy. Correction of hyponatremia is observed in 27% to 54% of patients with cirrhosis [7].

Understandably, the correction of hyponatremia due to secondary causes such as cirrhosis and congestive heart failure is particularly difficult. The therapeutic approach must always address the underlying condition. In 2005, the U.S. Food and Drug Administration approved the use of conivaptan (Vaprisol®). Other vaptans in various phases of clinical or marketing development include: mozavaptan, lixivaptan, satavaptan and tolvaptan. There is still more to be learned regarding the use of vaptans in cirrhotic patients with hyponatremia. There has been no extensive investigation comparing clinical outcomes and effectiveness of vaptans against the usual interventions such as water restriction and withholding of loop diuretics.

To end, the paper of Dr.Mahesh raises an important point regarding the prudence of slow and careful serum sodium correction. Chronic asymptomatic hyponatremia should be corrected at a slow rate of < 12 mmol/L/day. If ever vaptans would be employed in the treatment, their infusion should be stopped once serum sodium reaches 134 mmol/L, to avoid the risk of osmotic demyelination resulting to catastrophic central pontine myelinolysis [8].

CORRESPONDENCE TO

Emmanuel C. Gorospe, MD, MPH Department of Medicine, Johns Hopkins Bayview Medical Center, Mail stop 19 4940 Eastern Ave., Baltimore, MD 21224 Email: egorosp1@jhmi.edu

References

1. Mahesh, VN. Management of hyponatraemia in cirrhotic ascites. The Internet Journal of Gastroenterology 2008; 7.
2. Heuman, DM, Abou-Assi, SG, Habib, A, et al. Persistent ascites and low serum sodium identify patients with cirrhosis and low MELD scores who are at high risk for early death. Hepatology 2004; 40:802.
3. Gines, P, Wong, F, Smajda Lew, E, Diamand, F. Hyponatremia is a major determinant of impaired health-related quality of life in cirrhosis with ascites [Abstract]. Hepatology 2007; 46:567A.
4. Decaux, G, Soupart, A, Vassart, G. Non-peptide arginine-vasopressin antagonists: the vaptans. Lancet 2008;

371:1624.
5. Thibonnier, M, Coles, P, Thibonnier, A, Shoham, M. The basic and clinical pharmacology of nonpeptide vasopressin receptor antagonists. Annu Rev Pharmacol Toxicol 2001; 41:175.
6. Gines, P, Wong, F, Watson, H. Long-term improvement of serum sodium by the V2-receptor antagonist satavaptan in patients with cirrhosis and hyponatremia [Abstract]. J Hepatol 2007; 46:90A.
7. Gines, P, Guevarra, M. Hyponatremia in cirrhosis: pathogenesis, clinical significance, and management. [In Press] Hepatology 2008; 48.
8. Gross, P. Treatment of hyponatremia. Intern Med 2008; 47:885.

Author Information

Emmanuel C. Gorospe, MD, MPH
Department of Medicine, Johns Hopkins Bayview Medical Center