In hypovolemic hyponatremia, it is necessary to reach adequate extracellular volume, while in hypervolemic hyponatremia, water restriction is recommended. Water restriction in patients with SIADH corrects hyponatremia by only <2 mmol/L in the first 24–48 hours, even when drastic (<500 ml/d), and it is poorly tolerated due to the poor compliance given by the sense of thirst.[4,5,26,27] Thus, selective vasopressin 2 receptor antagonists (vaptans), medications that increase the excretion of water in the kidneys without affecting Na, can be used in patients with euvolemic conditions.

Vaptans block the action of arginine vasopressin on water retention, thus acting with an "aquaretic" effect (elimination of pure water and not electrolytes). Oral administration (15 and 30 mg tablets) must be once a day (peak after 2 hours, half-life about 8 hours), preferably in the morning regardless of meals. Patients on tolvaptan therapy can and should drink in response to thirst. The dose may be increased gradually (at intervals >24 hours to a maximum of 60 mg/day) to achieve the desired serum correction. The co-administration of other treatments for hyponatremia is not recommended. In the dose titration phase, due to the need for close monitoring of blood and volume levels, tolvaptan should be administered in the hospital. The duration of therapy with vaptans depends on the etiology.[28]

Conclusions

Approximately a quarter of older patients in the emergency department may present with a Na disorder. In a battery of biochemical tests to be performed on the older patient in the emergency room and upon entry to a geriatric ward, the dosage of Na cannot be missed, associated with the calculation of the plasmatic osmolality and the state of hydration of the patient. The etiological diagnosis constitutes a clinical challenge due to the many causative factors of hyponatremia, especially in older patients with a greater predisposition to physiological deterioration.[4] It must be considered that even mild chronic hyponatremia, often asymptomatic, could be clinically significant because it could be a marker of frailty and be related to greater mortality and morbidity.[29,30] Particular attention must be paid to the severity of the symptoms and the appropriate modalities of correction. Upon discharge, a reconciliation of the home medical therapy must be carried out.

References

1. Verbalis JG. Disorders of body water homeostasis. Best Pract Res Clin Endocrinol Metab 2003;17:471-503.
2. Verbalis JG, Goldsmith SR, Greenberg A, et al. Diagnosis, evaluation, and treatment of hyponatremia: expert panel recommendations. Am J Med 2013;126:S1-42.
3. Wald R, Jaber BL, Price LL, et al. Impact of hospital-associated hyponatremia on selected outcomes. Arch Intern Med 2010;170:294-302.
4. Shapiro DS, Sonnenblick M, Galperin I, et al. Severe hyponatremia in elderly hospitalized patients: prevalence, etiology and outcome. Intern Med J 2010;40:574-80.
5. Spasovski G, Vanholder R, Allolio B, et al. Hyponatremia guideline development group. clinical practice guideline on diagnosis and treatment of hyponatremia. Eur J Endocrinol 2014;170:G1-47. Erratum in: Eur J Endocrinol 2014;171:X1.
6. Hoorn EJ, Zietse R. Diagnosis and treatment of hyponatremia: compilation of the guidelines. J Am Soc Nephrol 2017;28:1340-9.
7. Braun MM, Barstow CH, Pyzocha NJ. Diagnosis and management of sodium disorders: hyponatremia and hypernatremia. Am Fam Physician 2015;91:299-307.
8. Woodward M, Gonski P, Grossmann M, et al. Diagnosis and management of hyponatraemia in the older patient. Intern Med J 2018;48:5-12.
9. Carlotti AP, Bohn D, Mallie JP, et al. Tonicity balance, and not electrolyte-free water calculations, more accurately guides therapy for acute changes in natremia. Intensive Care Med 2001;27:921-4.
10. Hillier TA, Abbott RD, Barrett EJ. Hyponatremia: evaluating the correction factor for hyperglycemia. Am J Med 1999;106:399-403.
11. Parenti G, Ricca V, Zogheri A, et al. A case of hyponatremia caused by central hypocortisolism. Nat Clin Pract Endocrinol Metab 2007;3:369-75.
12. Schwartz WB, Bennett W, Curlop S, et al. Hyponatraemia in cases of lung carcinoma. Am J Med 1957;23:529.
13. Finley JJ 4th, Konstam MA, Udelson JE. Arginine vasopressin antagonists for the treatment of heart failure and hyponatremia. Circulation 2008;118:410-21. Erratum in: Circulation 2009;119:e552.
14. Filippatos TD, Liamis G, Christopoulou F, Elisaf MS. Ten common pitfalls in the evaluation of patients with hyponatremia. Eur J Intern Med 2016;29:22-5.
15. Feldman BJ, Rosenthal SM, Vargas GA, et al. Nephrogenic syndrome of inappropriate antidiuresis. N Engl J Med 2005;352:1884-90.
16. Janicic N, Verbalis JG. Evaluation and management of hypo-osmolality in hospitalized patients. Endocrinol Metab Clin North Am 2003;32:459-81, vii.
17. Liamis G, Milionis H, Elisaf M. A review of drug-induced hyponatremia. Am J Kidney Dis 2008;52:144-53.
18. Sherlock M, O'Sullivan E, Agha A, et al. The incidence and pathophysiology of hyponatremia after subarachnoid haemorrhage. Clin Endocrinol (Oxf) 2006;64:250-4.
19. Verbalis JG, Barsony J, Sugimura Y, et al. Hyponatremia-induced osteoporosis. J Bone Miner Res 2010;25:554-63.
20. Gankam Kengne F, Andres C, Sattar L, et al. Mild hyponatremia and risk of fracture in the ambulatory elderly. QJM 2008;101:583-8.
21. Tolouian R., Alhamad T., Farazmand M, et al. The correlation of hip fracture and hyponatremia in the elderly. J Nephrol 2012;25:789-93.
22. Negri AL, Ayus JC. Hyponatremia and bone disease. Rev Endocr Metab Disord 2017;18:67-78.
23. Verbalis JG, Goldsmith SR, Greenberg A, et al. Hyponatremia treatment guidelines 2007: expert panel recommendations. Am J Med 2007;120:S1-21.
24. Fleming, JD; Babu S. Images in clinical medicine. Central pontine myelinolysis. N Engl J Med 2008;359:e29.
25. Li S, Xiao X, Zhang X. Hydration status in older adults: current knowledge and future challenges. Nutrients 2023;15:2609.
26. DeGoma E, Vagelos R, Fowler M, et al. Emerging therapies for the management of decompensated heart failure: from bench to bedside. J Am Coll Cardiol 2006;48:2397-409.
27. Adrogue HJ, Madias NE. Hyponatremia. N Engl J Med 2000;342:1581-9.
28. Verbalis JG, Adler S, Schrier RW, et al. Efficacy and safety of oral tolvaptan therapy in patients with the syndrome of inappropriate antidiuretic hormone secretion. Eur J Endocrinol 2011;164:725-32.
29. Decaux G. Is asymptomatic hyponatremia really asymptomatic?. Am J Med 2006;119:S79-82.
30. Filippatos TD, Makri A, Elisaf MS, et al. Hyponatremia in the elderly: challenges and solutions. Clin Interv Aging 2017;12:1957-65.