

REFERENCES

- Schiraldi F, Guiotto G: *Equilibrio Acido-base, Ossigeno, Fluidi & Elettroliti*. New York, NY: McGraw-Hill Companies; 2012.
- Johnson J: *Fluids and Electrolytes Demystified*, 2nd ed. New York, NY: McGraw-Hill Companies; 2018.
- Spasovski G, Vanholder R, Allolio B, et al: Clinical practice guideline on diagnosis and treatment of hyponatraemia. *Eur J Endocrinol* 3: G1, 2014. [PMID: 24569496]
- Sterns RH: Disorders of plasma sodium: causes, consequences, and correction. *N Engl J Med* 372: 55, 2015. [PMID: 25551526]
- Braun MM, Barstow GH, Pyzocha NJ: Diagnosis and management of sodium disorders: hyponatremia and hypernatremia. *Am Fam Phys* 5: 299, 2017. [PMID: 25822386]
- Morley JE: Dehydration, hypernatremia, and hyponatremia. *Clin Geriatr Med* 31: 389, 2015. [PMID: 26195098]
- Thomas DR, Cote TR, Laehorne L, et al: Understanding clinical dehydration and its treatment. *J Am Med Dir Assoc* 59: 1132, 2018. [PMID: 18519109]
- Koch CA, Fulop T: Clinical aspects of changes in water and sodium homeostasis in the elderly. *Rev Endocr Metab Disord* 18: 49, 2017. [PMID: 28303369]
- Arampatzis S, Funk GC, Benedikt A, et al: Impact of diuretic therapy-associated electrolyte disorders present on admission to the emergency department: a cross-sectional analysis. *BMC Med* 11: 83, 2013. [PMID: 23531202]
- Verbalis JG, Goldsmith, Greenberg A, et al: Diagnosis, evaluation, and treatment of hyponatremia: expert panel recommendations. *Am J Med* 126: S1, 2013. [PMID: 24074529]
- Dineen R, Thompson CJ, Sherlock M: Hyponatraemia: presentations and management. *Clin Med* 3: 263, 2017. [PMID: 28572229]
- Holland-Bill L, Christiansen CF, Heide-Jørgensen U, et al: Hyponatremia and mortality risk: a Danish cohort study of 279508 acutely hospitalized patients. *Eur J Endocrinol* 173: 71, 2015. [PMID: 26036812]
- Balling L, Schou M, Videbaek L, et al: Prevalence and prognostic significance of hyponatraemia in outpatients with chronic heart failure. *Eur J Heart Fail* 13: 968, 2011. [PMID: 21743065]
- Bettari L, Fiuzat M, Felker GM, et al: Significance of hyponatremia in heart failure. *Heart Fail Rev* 17: 17, 2012. [PMID: 20838881]
- Sola E, Watson H, Graupera I, et al: Factors related to quality of life in patients with cirrhosis and ascites: relevance of serum sodium concentration and leg edema. *J Hepatol* 57: 1199, 2012. [PMID: 22824819]
- Thurman JM, Berl T: Disorders of water metabolism, in Mount DB, Sayegh MH, Singh AJ (eds): *Core Concepts in the Disorders of Fluid, Electrolytes and Acid-Base Balance*. New York, NY: Springer; 2013.
- Ball S, Barth J, Levy M: Society for Endocrinology Endocrine Emergency Guidance: emergency management of severe symptomatic hyponatremia in adult patients. *Endocr Connect* 5: G4, 2016. [PMID: 27935814]
- Ayus JC, Caputo D, Bazerque F, et al: Treatment of hyponatremic encephalopathy with 3% sodium chloride protocol: a case series. *Am J Kidney Dis* 65: 435, 2015. [PMID: 25465163]
- Sterns RH, Hix JK, Silver S: Treating profound hyponatremia: a strategy for controlled correction. *Am J Kidney Dis* 56: 774, 2010. [PMID: 20709440]
- Rondon-Berrios H, Berl T: Vasopressin receptor antagonists in hyponatremia: uses and misuses. *Front Med* 4: 141, 2017. [PMID: 28879182]
- Sam R, Feizi I: Understanding hypernatremia. *Am J Nephrol* 36: 97, 2012. [PMID: 22739333]
- Rondon-Berrios H, Argyropoulos C, Ing TS, et al: Hypertonicity: clinical entities, manifestations and treatment. *World J Nephrol* 6: 1, 2017. [PMID: 28101446]
- Ates I, Ozkay N, Toprak G, et al: Factors associated with mortality in patients presenting to the emergency department with severe hypernatremia. *Intern Emerg Med* 11: 451, 2016. [PMID: 26688326]
- Carlberg DJ, Borek HA, Syverud SA, Holstege CP: Survival of acute hypernatremia due to massive soy sauce ingestion. *J Emerg Med* 45: 228, 2013. [PMID: 23735849]
- Pfennig CL, Slovis CM: Sodium disorders in the emergency department: a review of hyponatremia and hypernatremia. *Emerg Med Pract* 14: 1, 2012. [PMID: 23114652]
- Lindner G, Funk GC: Hypernatremia in critically ill patients. *J Crit Care* 28: 216.e11, 2013. [PMID: 22762930]
- Ranadive SA, Rosenthal SM: Pediatric disorders of water balance. *Pediatr Clin N Am* 58: 1271, 2011. [PMID: 21981960]
- Schiraldi F, Di Conza P, Guiotto G, Scott SW: Dyselectrolytemias and arrhythmias. *J Nephrol* 23 (Suppl 16): S182, 2010. [PMID: 21170878]
- El-Sherif N, Turitto G: Electrolyte disorders and arrhythmogenesis. *Cardiol J* 18: 233, 2011. [PMID: 21660912]
- Kaplan LJ, Kellum JA: Fluids, pH, ions and electrolytes. *Curr Opin Crit Care* 16: 323, 2010. [PMID: 20613504]
- Marti G, Schwarz C, Leichtle AB, et al: Etiology and symptoms of severe hypokalemia in emergency department patients. *Eur J Emerg Med* 21: 46, 2014. [PMID: 23839104]
- Singer AJ, Thode HC Jr, Peacock WF: A retrospective study of emergency department potassium disturbances: severity, treatment, and outcomes. *Clin Exp Emerg Med* 4: 73, 2017. [PMID: 28717776]
- Liamis G, Rodenburg EM, Hofman A, et al: Electrolyte disorders in community subjects: prevalence and risk factors. *Am J Med* 126:256, 2013. [PMID: 23332973]
- Oram RA, McDonald TJ, Vaidya B: Investigating hypokalaemia. *BMJ* 347: f5137, 2013. [PMID: 24065427]
- Krijthe BP, Heeringa J, Kors JA, et al: Serum potassium levels and the risk of atrial fibrillation: the Rotterdam Study. *Int J Cardiol* 168: 5411, 2013. [PMID: 24012173]
- Lin SH, Chu P, Cheng CJ, Chu SJ, Hung YJ, Lin YF: Early diagnosis of thyrotoxic periodic paralysis: spot urine calcium to phosphate ratio. *Crit Care Med* 34: 2984, 2006. [PMID: 16971853]
- Falhammar H, Thorén M, Calissendorff J: Thyrotoxic periodic paralysis: clinical and molecular aspects. *Endocrine* 43: 274, 2013. [PMID: 22918841]
- Bielecka-Dabrowa A, Mikhailidis DP, Jones L, Rysz J, Aronow WS, Banach M: The meaning of hypokalemia in heart failure. *Int J Cardiol* 158: 12, 2012. [PMID: 21775000]
- Pförtmüller CA, Leichtle AB, Fiedler GM, Exadaktylos AK, Lindner G: Hyperkalemia in the emergency department: etiology, symptoms and outcome of a life threatening electrolyte disorder. *Eur J Intern Med* 24: e59, 2013. [PMID: 23517851]
- Weisberg LS: Management of severe hyperkalemia. *Crit Care Med* 36: 3246, 2008. [PMID: 18936701]
- Batterink J, Cessford TA, Taylor RA: Pharmacologic interventions for the acute management of hyperkalemia in adults. *Cochrane Database Syst Rev* 10: CD010344, 2015.
- Rossignol P, Legrand M, Kosiborod M, et al: Emergency management of severe hyperkalemia: guideline for best practice and opportunities for the future. *Pharmacol Res* 113: 585, 2016. [PMID: 27693804]
- Harel Z, Harel S, Shah PS, Wald R, Perl J, Bell CM: Gastrointestinal adverse events with sodium polystyrene sulfonate (Kayexalate) use: a systematic review. *Am J Med* 126: 264, 2013. [PMID: 23321430]
- Meaney CJ, Beccari MV, Yang Y, Zhao J: Systematic review and meta-analysis of patiromer and sodium zirconium cyclosilicate: a new armamentarium for the treatment of hyperkalemia. *Pharmacotherapy* 37: 401, 2017. [PMID: 28122118]
- Kanji S, MacLean RD: Cardiac glycoside toxicity: more than 200 years and counting. *Crit Care Clin* 4: 527, 2012. [PMID: 3145789]
- Kette F, Ghuman J, Parr M: Calcium administration during cardiac arrest: a systematic review. *Eur J Emerg Med* 20: 72, 2013. [PMID: 22990036]
- Ayuk J, Gittoes NJ: Contemporary view of the clinical relevance of magnesium homeostasis. *Ann Clin Biochem* 51: 179, 2014. [PMID: 24402002]
- Rowe BH, Sevcik W, Villa-Roel C: Management of severe acute asthma in the emergency department. *Curr Opin Crit Care* 17: 335, 2011. [PMID: 21716106]
- Janett S, Camozzi P, Peeters GG, et al: Hypomagnesemia induced by long-term treatment with proton-pump inhibitors. *Gastroenterol Res Pract* 2015: 951768, 2015. [PMID: 26064102]
- Jiang P, Lv Q, Lai T, Xu F: Does hypomagnesemia impact on the outcome of patients admitted to the intensive care unit? A systematic review and meta-analysis. *Shock* 47: 288, 2017. [PMID: 27753792]
- Ayuk J, Gittoes NJ: How should hypomagnesemia be investigated and treated? *Clin Endocrinol (Oxf)* 75: 743, 2011. [PMID: 21569071]
- Raja Rao MP, Panduranga P, Sulaiman K, Al-Jufaili M: Digoxin toxicity with normal digoxin and serum potassium levels: beware of magnesium, the hidden malefactor. *J Emerg Med* 45: e31, 2013. [PMID: 23685098]
- Gao X, Peng L, Adhikari CM, Lin J, Zuo Z: Spironolactone reduced arrhythmia and maintained magnesium homeostasis in patients with congestive heart failure. *J Card Fail* 13: 170, 2007. [PMID: 17448413]
- Kala J, Abudayyeh A: Magnesium: an overlooked electrolyte. *J Emerg Med* 52: 741, 2017. [PMID: 28222929]
- Weng YM, Chen SY, Chen HC, Yu JH, Wang SH: Hypermagnesemia in a constipated female. *J Emerg Med* 44: e57, 2013. [PMID: 22244603]
- Peacock M: Calcium metabolism in health and disease. *Clin J Am Soc Nephrol* 5 (Suppl 1): S23, 2010. [PMID: 20089499]
- Hoor EJ, Zietse R: Disorders of calcium and magnesium balance: a physiology-based approach. *Pediatr Nephrol* 28: 1195, 2013. [PMID: 23142866]
- Ward BK, Magno AL, Walsh JP, Ratajczak T: The role of the calcium-sensing receptor in human disease. *Clin Biochem* 45: 143, 2012. [PMID: 22503956]
- Riccardi D, Brown EM: Physiology and pathophysiology of the calcium-sensing receptor in the kidney. *Am J Physiol Renal Physiol* 298: F485, 2010. [PMID: 19923405]
- Brandi ML, Bilezikian JP, Shoback D, et al: Management of hypoparathyroidism: summary, statement and guidelines. *J Clin Endocrinol Metab* 101: 2273, 2016. [PMID: 26943719]
- Schattner A, Dubin I, Huerber R, et al: Hypocalcemia of malignancy. *Neth J Med* 74: 231, 2016. [PMID: 27571720]
- <https://www.ncbi.nlm.nih.gov/books/NBK430912/> (Goyal A, Bhimji SS: Hypocalcemia. StatPearls 2017.) Accessed January 21, 2019.
- Krogh L, Wynne JM: The value of Chvostek's sign in tetany. *South African Med J* 42: 846, 1968. [PMID: 5680230]
- McGreal GT, Kelly JL, Hehir DJ, Brady MP: Incidence of false positive Chvostek's sign in hospitalized patients. *Ir J Med Sci* 164: 56, 1995. [PMID: 7890539]
- French S, Subauste J, Geraci S: Calcium abnormalities in hospitalized patients. *South Med J* 105: 231, 2012. [PMID: 22475676]
- Levine M, Nikkanen H, Pallin DJ: The effect of intravenous calcium in patients with digoxin toxicity. *J Emerg Med* 40: 41, 2011. [PMID: 19201134]

67. Maier JD, Levine SN: Hypercalcemia in the intensive care unit: a review of pathophysiology, diagnosis, and modern therapy. *J Intensive Care Med* 30: 235, 2015. [PMID: 24130250]
68. Endres DB: Investigation of hypercalcemia. *Clin Biochem* 45: 954, 2012. [PMID: 22569596]
69. Durant E, Singh A: ST elevation due to hypercalcemia. *Am J Emerg Med* 35: 1033.e3, 2017. [PMID: 28209241]
70. Bilezikian JP: Primary hyperparathyroidism. *Endocr Pract* 18: 781, 2012. [PMID: 22982802]
71. Ahmad S, Kuraganti G, Steenkamp D: Hypercalcemic crisis: a clinical review. *Am J Med* 128: 239, 2015. [PMID: 25447624]
72. <https://www.ncbi.nlm.nih.gov/books/NBK430714/> (Naganathan S, Gossman WG: Hypercalcemia. StatPearls 2017.) Accessed January 21, 2019.
73. Raina R, Garg G, Sethi SK: Phosphorus metabolism. *J Nephrol Therapeutic* S3: 008, 2012.
74. Christopoulou EC, Filippatos TD, Megapanou E, et al: Phosphate imbalance in patients with heart failure. *Heart Fail Rev* 22: 349, 2017. [PMID: 28432604]
75. Fenselfeld AJ, Levine BS: Approach to treatment of hypophosphatemia. *Am J Kidney Dis* 60: 655, 2012. [PMID: 22863286]
76. Bhan I: Phosphate management in chronic kidney disease. *Curr Opin Nephrol Hypertens* 23: 174, 2014. [PMID: 24445424]
77. Tonelli M, Pannu N: Oral phosphate binders in patients with kidney failure. *N Engl J Med* 362: 1312, 2010. [PMID: 20375408]