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Obsolete volume approach to Hyponatremia: A need for newer directions

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Abstract

The volume approach to hyponatremia has failed. Euvolemiac ,hypovolemic or hypervolemic hyponatremia has persisted for decades despite agreement that it is impossible to distinguish euvolemia from hypovolemia. We present 3 cases of renal salt wasting (RSW) without cerebral disease to illustrate this failure. Two females ages 84 and 64 with syncope and Lyme's disease had serum sodium (SNa) 117 and 118 mEq/L, respectively. The third a 71 y.o. male with advanced B cell lymphoma had increasing edema of legs, ascites, pleural effusion, recent 10 pound weight gain and SNa 116 mEq/L. All had postural hypotension and tachycardia on standing, normal adrenal, thyroid and renal function, concentrated urine and high urine sodium concentration (UNa). All had increased fractional excretion (FE) of urate while hyponatremic and normonatremic and both females had decreased total body (TBW), extracellular (ECW) and intracellular water (ICW) volumes by deuterium for TBW and sodium bromide for ECW that proved RSW. Saline diluted the urine of 2 patients, when plasma ADH was undetectable in the edematous patient, who had a massive diuresis with severe hypotension that required large volumes of saline after furosemide. These cases of RSW without cerebral disease support our proposal to change the outmoded term, cerebral salt wasting, to RSW. Since SIADH was reported in autonomic failure, postural blood pressure changes do not always indicate volume depletion. The dangers of distal diuretics in RSW and confusion in hyponatremia will be discussed. We propose a new algorithm, which highlights FEurate, that is superior to the volume approach.

Biography

John Maesaka received his MD degree from the Boston University School of Medicine, received his training in internal medicine at Washington University in St. Louis and Mt. Sinai Hospital in New York and fellowship in nephrology at Mt. Sinai. He is presently professor of medicine at Stony Brook School of Medicine and chief emeritus of the division of nephrology and hypertension at Winthrop-University Hospital. Dr Maesaka has published extensively on renal salt wasting, hyponatremia in peer reviewed journals, review articles, commentary and chapters.