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High prevalence of renal salt wasting (RSW), identification of haptoglobin related protein without signal peptide as inducer of RSW, as biomarker of RSW and cause of a new syndrome of RSW in Alzheimer disease

John K Maesaka

NYU Grossman Long Island School of Medicine, USA

Background: The approach to hyponatremia is in a state of flux. Cerebral/renal salt wasting (RSW) is considered rare and presents with identical parameters as SIADH that create a diagnostic and therapeutic dilemma, whether to fluid-restrict waterlogged patients with SIADH or administer saline to dehydrated patients with RSW. We previously demonstrated the presence of a natriuretic protein (NP) in the plasma of RSW neurosurgical patients and in patients with Alzheimer's disease (AD).

Methods: We determined the causes of hyponatremia in the general hospital wards by utilizing a new algorithm and identified the NP in an RSW patient with subarachnoid hemorrhage (SAH) and another with AD by the same rat clearance methodology.

Results: Of 62 hyponatremic patients, (A) 17 patients (27%) had SIADH, (B) 19 patients (31%) had a reset osmostat (RO), (C) 24 patients (38%) had RSW, 21

without clinical evidence of cerebral disease, (D) 1 had Addison's disease and (E) 1(1.6%) due to hydrochlorothiazide.

The SAH and AD sera had identical robust increases in FESodium and especially FELithium, lithium serving as a marker of proximal tubule sodium transport. We identified haptoglobin related protein (Hpr) without signal peptide (Hpr-WSP) as the natriuretic protein. Recombinant Hpr with signal peptide had no natriuretic activity.

Conclusions: RSW is common, cerebral salt wasting should be changed to renal salt wasting. Hpr-WSP may be the NF that causes C-RSW, can serve as a biomarker to differentiate RSW from SIADH on first encounter, need to develop inhibitor to HPR-WSP, introduces a new syndrome of RSW in AD and can effectively treat congestive heart failure when combined with distal diuretic.

Biography

John Maesaka works as a professor of medicine at NYU Grossman Long Island School of Medicine and Chief Emeritus, Division of Nephrology and Hypertension at the NYU Langone Hospital Long Island. He received a BA degree Harvard University, MD degree Boston University School of Medicine and trained at Barnes Jewish Hospital Washington University in St. Louis and Mount Sinai Hospital and Medical School N.Y. He spent 5 years in a physiology laboratory at Mount Sinai Medical Center, which prepared him for his future research endeavors. He spent many years studying hyponatremic conditions, especially renal salt wasting and identifying the protein that causes it.