

Symptomatic hyponatremia: A consequence of acute urinary retention due to benign prostatic hyperplasia

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ABSTRACT

Hyponatremia is a common disorder in the geriatric population. Patients can present in altered sensorium, seizures, and even coma. Syndrome of inappropriate antidiuretic hormone secretion (SIADH) and diuretic therapy are the common causes in the elderly. However, acute urinary retention due to benign prostatic hyperplasia (BPH) resulting in hyponatremia is a rare scenario. Here, we report the case of a 60-year-old male patient who developed hyponatremia following urinary retention due to benign prostatic hyperplasia (BPH); which is a rare scenario.

Keywords: *Benign prostatic hyperplasia, Hyponatremia, Urinary retention.*

Symptomatic hyponatremia can be considered as a medical emergency, requiring aggressive management. It is commonly encountered in the geriatric population, affecting both hospitalized patients (20%) and those living at home (10%) [1]. The cause for hyponatremia in elderly can be multifactorial, ranging from diminished thirst, age-related decrease in total body water and reduction in glomerular filtration rate due to the decrease in number of glomeruli and reduced renal blood flow. All these mechanisms result in increased passive reabsorption of water from the distal tubules and impaired urinary dilution [2,3]. Diuretic therapy and syndrome of inappropriate antidiuretic hormone secretion (SIADH) are other aetiologies.

The patient being described is an elderly male who developed hyponatremia following urinary retention due to benign prostatic hyperplasia (BPH); which is a rare scenario.

CASE REPORT

A 60-year-old male was brought with complaints of decreased appetite, nausea and vomiting for the past 3 days and altered sensorium since 1 day. His attendant mentioned that he had also complained of difficulty in passing urine for nearly 4 days. There was no history of fever, seizures, loss of consciousness or recurrent falls. He did not have any comorbidity and was not on any regular medications.

On examination, the patient was disoriented and the vitals were stable. There were no signs of meningeal irritation. His urinary bladder was palpable up to the umbilicus. Other systemic examinations were normal.

His blood investigations showed hyponatremia (101 mEq/L), hyperkalemia (5.6 mEq/L) and deranged renal functions (urea 65

mg/dL and creatinine 2.1 mg/dL). Other routine investigations like complete blood count, liver functions, plasma ammonia, thyroid stimulating hormone (TSH), HbA1c were normal. Urine routine did not show any pus cells or hematuria. Plasma and urine osmolalities were 212 mOsm/L and 220 mOsm/L respectively. Urine spot sodium was 40 mEq/L. Serum fasting cortisol and prostate-specific antigen were normal. Ultrasound abdomen revealed grade 2 prostatomegaly (62 x 29 x 40 mm). Chest X-ray and electrocardiogram (ECG) did not show any abnormalities.

The patient was immediately catheterized and about 2 litres of urine was drained. He was administered 3% saline infusion (50 ml) followed by intravenous normal saline. Sodium correction was done at 8 to 10 mEq per day. Oral tamsulosin (0.4 mg) was started once daily. By day 3 of admission, he became oriented, with sodium and potassium levels of 131 mEq/L and 4.5 mEq/L respectively, and normalization of renal functions. He was discharged on day 5 on Foley's catheter and tamsulosin.

The patient was reviewed after 2 weeks. His electrolytes and renal functions were normal. Foley's catheter was removed and tamsulosin was continued. On subsequent follow-up after 2 weeks, he did not have any further episodes of urinary retention and blood reports continued to be normal. He was also primed about the need for transurethral resection of prostate (TURP) procedure.

DISCUSSION

Acute urinary retention (AUR) is a significant and uncomfortable event in the course of BPH. About 65% of patients with BPH present with AUR [4]. These patients usually have lower urinary tract symptoms for an average of 32 months prior to retention

attack [5]. AUR was found to be the presenting complaint in 24% to 42% of men undergoing prostatectomy [6]. Patients presenting with an episode of AUR are at risk for similar episodes in the future. The possibility of AUR following trial without catheter ranges from 38% to 56%; depending on prostate size, post-void residual urine and the time interval between catheter insertion and trial without catheter [7].

The etiology for AUR can be broadly classified into three categories: increase in the resistance to the urine flow, interruption in bladder innervation and factors causing bladder overdistension. The factors responsible for AUR in BPH are believed to be prostatic inflammation, prostatic infarction, constipation, genitourinary instrumentation, post-operative period (due to pain, anaesthesia, analgesics, intravenous fluids), cerebrovascular accident, urinary tract infections, alcohol and drugs (like anticholinergic, NSAIDs) [8].

In order to maintain a normal sodium level, the amount of water ingested should be equal to the amount excreted. SIADH is a common cause for hyponatremia in the elderly. It usually runs a benign course, but intercurrent illnesses can lead to symptomatic hyponatremia [9-11]. Moreover, as age increases, there may be an increased vasopressin response to hyperosmolarity [12]. The diagnosis of SIADH is based on hypo-osmotic hyponatremia, urine osmolality >100 mOsm/L, euvolemia and the absence of other conditions that stimulate antidiuretic hormone secretion like hypothyroidism, adrenal insufficiency, volume contraction. The probable mechanism of hyponatremia in AUR is the stimulation of antidiuretic hormone release from the pituitary, either due to bladder distension or in response to pain; thereby creating a clinical picture similar to SIADH [13].

Only a handful of cases of hyponatremia due to AUR have been reported. The causative factors were urethral stricture and spinal canal stenosis [14,15]. Though the prevalence of urinary obstruction is seen in about 20 to 35% of elderly men, the incidence of hyponatremia due to AUR as a result of BPH is uncommon [15].

CONCLUSION

SIADH is one of the most common causes of hyponatremia in the elderly. Urinary retention resulting in bladder distension

can result in stimulation of antidiuretic hormone release. Hence, BPH should be considered as a cause of hyponatremia in elderly males.

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