Recognizing and Managing Pyschogenic Polydipsia in Mental Health

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ABSTRACT

Psychogenic polydipsia (PPD) or water intoxication with polyuria and polydipsia is common among patients with psychiatric disorders. Although the underlying pathology is unclear, PPD or drinking more than 3 liters of fluid daily can be a highly disabling and life-threatening condition. In half of the cases, it can lead to mortality because of cerebral edema and central nervous system dysfunction with delirium, seizures, coma, and death. Excessive drinking can accompany other repetitive behaviors in schizophrenic, bipolar, or psychotic patients. A screening program can detect cases early to minimize morbidity and mortality. This article describes the evidence-based screening, evaluation, and management of water intoxication or polydipsia and includes a case study to illustrate evaluation and management.

Keywords: polydipsia, psychogenic, water intoxication

INTRODUCTION

Detection of polydipsia (e.g., hyperhydration or water intoxication) is a challenge for psychiatric nurses. It occurs when the consumption of water exceeds safe limits and creates a potentially fatal disturbance in brain function. It is rare among normal and healthy individuals and does not usually occur accidentally.[1] The mechanisms of polydipsia are not well understood or diagnosed. It may progress from excessive water intake to complications (e.g., impaired water excretion and hyponatremia).[2-4]

Polydipsia may occur among 1% to 20% of people with chronic schizophrenia.[4,5] Polydipsia may have a slow and erratic course. It presents with excessive water intake that initially does not interrupt sleep with excess urination. While it is asymptomatic in mild and early forms, it becomes more severe with time, progressing to a syndrome with neurological abnormalities (e.g., headache, muscle cramps, blurred vision, weakness, tremors, restlessness, confusion, lethargy, delirium, seizures, coma, and death), behavioral and cognitive problems, gastrointestinal symptoms, urinary tract disease (e.g., incontinence, hydronephrosis, renal failure), congestive heart failure, and metabolic abnormalities (e.g., hypocalcemia, osteopenia).[4] Risk factors in psychiatric patients include a lifelong history of excessive drinking, extended hospitalization, heavy smoking, and medications that cause dry mouth or thirst.[6] When polydipsia progresses and includes hyponatremia, the diagnosis is often missed in psychiatric settings until the hyponatremia becomes severe and the patient has life threatening seizures. The nurse needs to recognize the risk of developing polydipsia, detect its symptoms, notify the attending psychiatrist, and monitor complications including seizures and coma.

Schizophrenia typically accounts for 80% of the diagnoses of polydipsia and water intoxication.

CASE EXAMPLE

Nurses knew "Mr. Jones" well; he was a schizophrenic patient with a history of substance abuse, who was hospitalized for an acute exacerbation of schizophrenic symptoms (auditory hallucinations, ideas of persecution). The treatment goals were to start medications and stabilize the acute symptoms. The nurses' notes indicated that he was frequently disoriented, restless, and forgetful (i.e., symptoms of polydipsia) and would leave the day room to pace in the hall. He complained of weakness. He was always drinking water and juice. He was a loner who had minimal interaction with others. Because nurses had emphasized hand washing to reduce the risk of multidrug-resistant *Staphylococcus* sp infection and influenza, they thought his frequent trips to the restroom were for hand washing. Staff did not realize that the disorientation, forgetfulness, and excess fluid intake and output signaled polydipsia.

A night nurse was suspicious; she thought he drank a lot of water and she recommended diabetes screening, but the results were normal. The nurses noted that his confusion and forgetfulness increased along with flushing and sweating but did not identify these as increasing symptoms of polydipsia. One evening he was rushed to the emergency department with confusion and hyponatremia. These experienced psychiatric nurses were amazed that he went to emergency. In retrospect, a few thought he might have had diabetes, but no one considered polydipsia or looked for its symptoms. During treatment, his serum sodium level reached 140 meq/L. His hyponatremia was treated with diuresis and electrolyte replacement. Because of the potentially fatal complications, nurses wanted to know how to detect, evaluate, and prevent polydipsia and water intoxication.

ETIOLOGY AND PATHOPHYSIOLOGY

Although drinking water appears healthy, over-hydrating can lead to swelling of the brain and disrupt vital functions, such as breathing, and cause death. Usually healthy kidneys eliminate 1 liter of water per hour or about 20 L/day, but stress and disease can reduce this amount.[2] Nerve transmission and muscle function require adequate sodium balance, and even a slight reduction in sodium can cause imbalance. The kidneys, pituitary gland, and hypothalamus, as well as volume receptors in the aortic arch and cardiac atria, interact to control thirst and production of urine. When the anterior hypothalamic thirst center is stimulated, polydipsia occurs. Polydipsia is the consumption of greater amounts of water than normal. Normally, when excess thirst occurs, it stimulates polydipsia to compensate for the thirst. It then stimulates polyuria to eliminate the excess fluid. When you drink too much water but do not excrete it adequately, the fluid overpowers the kidneys so they cannot process and eliminate the fluid effectively. The excess water lowers salt and electrolyte concentrations, dilutes the blood, and moves to the cells and organs, such as the brain, where it causes swelling. The skull prevents the brain from expanding. The swelling causes confusion, forgetfulness, and