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Polydipsia Management Challenges

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Introduction

Psychogenic polydipsia (PPD) or self-induced water intoxication (i.e., SIWI) or water intoxication are all used to describe compulsive water drinking. It is now not such an uncommon entity in patients with mental illness but is still underreported and ill defined. In PPD there is a disturbance in thirst control not caused by impairment in production or release of ADH (Anti Diuretic Hormone) [1]. The illness generally develops in three phases, beginning with polydipsia and polyuria, followed by hyponatremia (water is retained as the kidneys fail to excrete the excess fluid, resulting in low sodium serum values) and finally water intoxication which may manifest as nausea, vomiting, delirium, ataxia, seizures, and coma, and may even be fatal. Though most commonly seen in patients with chronic schizophrenia, other mental illnesses associated with PPD are affective disorders, psychosis with onset during childhood, mental retardation, personality disorders, and tension/anxiety. Studies have reported that it can affect about 6 to 20% of psychiatric patients. Indian literature is very sparse on this subject, so here we present such a case on psychogenic polydipsia [2]. Psychogenic polydipsia may be associated with several psychiatric conditions including psychotic depression, bipolar disorder, and most commonly schizophrenia with up to 18% of patients displaying polydipsic behaviour.

Hyponatraemia can worsen psychotic symptoms and early signs of sodium deficiency may mimic psychosis or bipolar disorder. The pathogenesis of the polydipsia may be hypersensitivity to vasopressin, an increase in dopamine activity, or a defect in osmoregulation [3]. Evidence suggests that the osmotic set point for vasopressin secretion may be lower in patients with polydipsia and hyponatraemia, leading to impairment in water excretion. Psychological stress and acute psychosis may contribute to this transient resetting of the osmostat. Other postulated hypotheses include stimulation of thirst centers by elevated dopamine levels, drinking to counteract anticholinergic side effects of psychotropic medications, and changes in feedback regulation of the hypothalamic-pituitary axis induced by chronic polydipsia. Still the cause of polydipsia remains unclear. This particular patient was not diagnosed with psychotic symptoms, but was found to be within the anxiety spectrum that led him to compulsive water drinking. Also PPD remains an underdiagnosed entity and often comes to the attention of a psychiatrist after the onset of complications like seizures, as was seen in this patient. There is some agreement in common areas of diagnosis and treatment interventions (i.e. Clozapine, behaviour modification, psychosocial rehabilitation), a consistent treatment approach throughout the years has emphasized PSR strategies such as psycho-education, which has been implemented in various tertiary care settings [4]. A study reported D2-sparing profiles of receptor binding achieved by risperidone and olanzapine can be beneficial in this. In another review, a number of antipsychotics including olanzapine were reported to be useful in anxiety spectrum disorders. In any case, antipsychotics have very broad pharmacodynamic effects, and many ways in which they could influence anxiety and not necessarily or reliably in a favourable direction. They appear to have complex regionally specific effects on GABA based on *in-vitro* and animal models. In another study it was reported that olanzapine counteracts stress-induced, anxiety-like behaviour in rats via an indirect effect on the GABAergic system. This seems to be mediated by olanzapine's effects on allopregnanolone, a neuroactive steroid that activates the GABA receptor complex. Because atypical antipsychotics have a lower risk of extrapyramidal symptoms and have an effect on anxiety symptoms (as well as their availability and they are free in our hospital's pharmacy), we prescribed olanzapine to this patient. With this patient we tried to use a holistic approach in treatment with both pharmacotherapy with olanzapine and behaviour management with restriction of fluid intake. An SSRI like paroxetine was found in this patient to exacerbate the hyponatremia and should only be used in conditions where depression is comorbid [5].

Considering that psychogenic polydipsia is commonly present, especially in psychiatric populations, a regular evaluation into water intake should be done so as to have an early diagnosis and intervention and avoid fatal complications like hyponatremia, seizures and coma. No specific cause and treatment has been identified for compulsive water drinking and therefore further research is needed for better management of such patients.

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