Pharmacological Management of Psychogenic Polydipsia in Adults: A Clinical Review

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Background

- Psychogenic polydipsia occurs in 6-20% of all psychiatric patients.
- Studies estimate up to a 20% mortality rate during the acute phase of illness.
- There remains a dearth of psychiatric literature regarding the pharmacological management of psychogenic polydipsia.
- Existing literature on this topic consists primarily of case reports and low-powered studies and emphasizes pathophysiology rather than management.
- The array of treatment options available, in combination with the sparse literature on this topic, presents a challenge for treating patients with psychogenic polydipsia.
- Given that no research has adequately discussed the various pharmacotherapies, our poster aims to ameliorate this gap in knowledge.

Methods

We conducted a literature search on PubMed using the following search terms: “psychogenic polydipsia,” “psychogenic polydipsia treatment,” “psychogenic polydipsia management.” We included original trials, case reports, and reviews written in English and published between database inception and March 2021. We excluded studies focused on nephrogenic polydipsia, diabetes insipidus, syndrome of inappropriate antidiuretic hormone secretion (SIADH), behavioral treatments, animal models, and pediatric subjects. We compiled all proposed pharmacological interventions included within the studies.

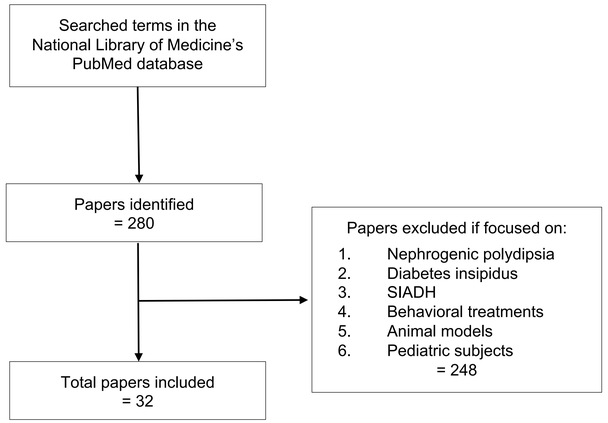

Figure 1. Consort diagram

Results

- We identified 32 articles covering 21 different pharmacological treatments for psychogenic polydipsia.
- Pharmacotherapies identified: acetazolamide, bupropion, captopril, clonidine, clozapine, conivaptan, demeclocycline, enalapril, fluoxetine, haloperidol, irbesartan, lithium, losartan, naloxone, naltrexone, olanzapine, pindolol, propranolol, risperidone, tolvaptan, and vasopressin.
- The most commonly discussed medication class was atypical antipsychotics.
- The most frequently cited medication was clozapine.

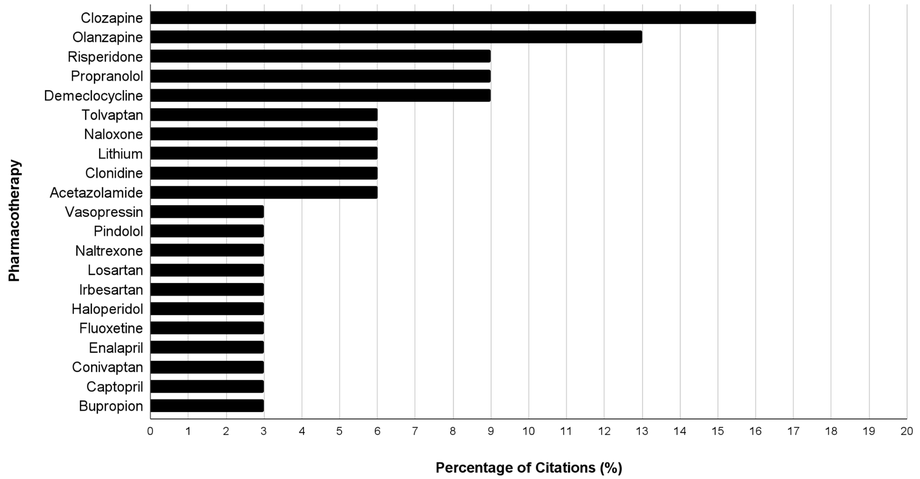

Figure 2. Percentage of included citations that reference the pharmacotherapy

Discussion

- The comparative effectiveness of trialed medications and their therapeutic mechanisms in psychogenic polydipsia is largely speculative.
- While demeclocycline and lithium have been used to treat hyponatremia, recent studies suggest that vaptans can rapidly normalize serum sodium levels with fewer adverse effects.
- Excessive water intake has been reduced by beta blockers, naltrexone, naloxone, angiotensin receptor blockers, bupropion, and atypical antipsychotics, albeit with inconsistent results.
- Clozapine and acetazolamide have literature supporting their role in correcting hyponatremia and reducing excessive water intake associated with psychogenic polydipsia.
- Conversely, there is little support for the therapeutic use of angiotensin converting enzyme inhibitors or clonidine.
- Overall, clozapine was the most commonly cited and well-supported pharmacotherapy.
- Clozapine may normalize plasma osmolality and serum sodium, reduce water consumption, and improve the overall severity of psychogenic polydipsia.
- Clozapine is theorized to alter glutamate neurotransmission, which is a proposed mechanistic theory for the development of psychogenic polydipsia in schizophrenia spectrum illness, and may serve as an explanation for treatment response.

Table 1. Theoretical mechanisms of psychogenic polydipsia in schizophrenia spectrum illness

Major Mechanistic Theories of Psychogenic Polydipsia
1. Dopamine receptor hypersensitivity
2. Arginine vasopressin osmostat alteration
3. Anterior hippocampal-induced stress diathesis
4. Pathologic glutamatergic neuron transmission

- **Strengths**: This is the first narrative review to compile 21 different medications used to treat psychogenic polydipsia in psychiatric patients. We referenced individual medications, not merely medication classes.
- **Limitations**: This is not a rigorous systematic review. We did not evaluate the demographics (beyond psychogenic polydipsia diagnosis and age>18 years) or comorbid diagnoses in participants of the studies.

Conclusions

- Atypical antipsychotics, specifically clozapine, may be a promising treatment of psychogenic polydipsia, though more controlled studies must be performed to assess their effectiveness.
- The seemingly disparate mechanisms of action among the identified pharmacological treatments highlights the complex pathophysiology of psychogenic polydipsia, which requires further investigation..
- No research has adequately compared these medications to identify an effective or superior pharmacotherapy.
- This review serves as an impetus for more rigorous controlled studies regarding effective pharmacological management of psychogenic polydipsia.

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