

The Influence of Medications on Thirst

The relationship between medication interaction and thirst often remains understated, yet it is profoundly significant. Medication-induced dehydration, whether direct or indirect, poses common risks in patient care. Paired with inadequate fluid intake medication-induced hydration can cause impaired cognitive function and renal function, affect body temperature and blood pressure, exacerbate adverse drug reactions, among other consequences. With up to 60% of a human body is water, understanding how medications influence thirst and hydration is crucial to ensure a patient's well-being and optimize their treatment outcomes.

Many medications contribute to dehydration and thirstiness including antipsychotics, selective serotonin reuptake inhibitors (SSRIs), Serotonin-norepinephrine reuptake inhibitors (SNRIs), benzodiazepine, lithium, and laxatives.

Antipsychotics medications treat various health conditions such as schizophrenia and bipolar disorder. They are classified as first-generation (typical) or second-generation (atypical). First-generation antipsychotics are dopamine receptor antagonist, which inhibits dopaminergic neurotransmission. This includes haloperidol (Haldol), Fluphenazine (Prolixin), and loxapine (Loxitane). Second generation work by blocking D2 dopamine and serotonin receptor. These include risperidone (Risperdal), quetiapine (Seroquel), and lurasidone (Latuda). Antipsychotics may cause xerostomia or dry mouth and diaphoresis or sweating. Both side effects cause increase thirst and a greater risk of dehydration. In addition, antipsychotics can cause neuroleptic malignant syndrome. This rare but serious side effect presents with muscle rigidity, fever, sialorrhea, and diaphoresis, which contributes to increase risk of dehydration.

Selective serotonin reuptake inhibitors (SSRIs) are one of the most prescribed medications that treat numerous conditions such as depression and anxiety. They increase serotonin activity by inhibiting the reuptake of serotonin at the serotonin transporter. SSRIs have little to no effect on acetylcholine compared to other antidepressants however dry mouth is still reported frequently. Common SSRIs include sertraline (Zoloft), fluoxetine (Prozac), and citalopram (Celexa).

Like SSRIs, Serotonin-norepinephrine reuptake inhibitors (SNRIs), inhibits the presynaptic uptake of serotonin as well as norepinephrine. However, SNRIs are shown to be associated with a greater risk of dry mouth compared to SSRIs. Commonly prescribed SNRIs include duloxetine (Cymbalta), venlafaxine (Effexor XR), and Desvenlafaxine (Pristiq).

Benzodiazepines act on the benzodiazepine receptors in the central nervous system. This class of drugs are used for various indications including agitation, anxiety, and seizure activity. Adverse effects from these drugs can include vomiting and diarrhea which eliminates water and electrolyte rapidly from the body causing dehydration. In addition, these reactions can be seen in benzodiazepine withdrawal along with sweating. Common benzodiazepines are alprazolam (Xanax), lorazepam (Ativan), and diazepam (Valium).

Lithium, a commonly prescribed medication for bipolar disorder, contributes to dehydration through its effects on kidney function. Nephrogenic diabetes insipidus is the most seen renal disease with lithium

therapy. It is known to induce dehydration by interfering with the renal collecting tubules. This disrupts the kidney's ability to conserve water, resulting in increased urine production.

An easily accessible drug that may cause dehydration for patients is laxatives. These over-the-counter medications promote bowel movements by stimulating the muscles of the intestine or softening stool. Inappropriate use causes excessive water and minerals to be pulled out of the body leading to dehydration. Common laxatives are polyethylene glycol (MiraLAX), docusate (Colace), or sennosides (Senokot).



Our body obtains water from three main sources – beverages, solid foods, and the metabolism of macronutrients. The most effective treatment to manage dehydration and thirst is by drinking water. Water will replenish fluids and help quench thirst effectively. A recommended daily intake would be 2.5 L/day in men and 2.0 L/day in women per the European Food Safety Authority. For individuals who prefer flavored options, suggest alternatives such as electrolyte drinks, non-caffeinated tea, or water infused with natural flavors. Avoid alcohol, caffeinated beverages, and sugary drinks, as they can exacerbate fluid loss and may interact with medications. Eating foods high in water such as fruits (watermelon, oranges, or berries), vegetables (cucumbers, lettuce) or low sodium soups will also help supplement fluid intake.

Recognizing common medications that cause dehydration and ways to stay hydrated is important especially at higher risk in population groups such as children, elderly, pregnant or lactating women. Educate patients on the warning signs of dehydration including thirst, dark urine, fatigue, and confusion. Encouraging open communication with patients regarding the potential effects of medications on thirst and hydration status allows them to recognize and address signs of dehydration promptly.

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**** Drugs that are not on the formulary will require a PA (prior authorization) request to be submitted****

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This newsletter is brought to you by the Mercy Care Pharmacy Team. For questions, please email Fanny A Musto (MustoF@mercycaresaz.org), Denise Volkov (VolkovD@mercycaresaz.org) or Trennette Gilbert (gilbert@mercycaresaz.org)