Frimley Health and Care

NHS Frimley

Medicines that affect fluid balance in the body

Due to the ageing process, older adults are at higher risk of dehydration. This risk of dehydration can be further increased with the prescribing of medicines for chronic conditions E.g. type 2 diabetes, heart failure. Some medicines affect fluid balance in the body, resulting in more water being lost through the kidneys as urine.

Medicines that can increase risk of dehydration are listed below.

ANTACIDS

Antacids can cause dehydration because of the moisture they require when being absorbed by your body. Drinking plenty of water can reduce dry mouth, stomach cramps and dry skin that is sometimes associated with antacids.
Antacids containing magnesium can cause diarrhoea increasing the risk of dehydration due to loose stools.
Calcium and aluminium containing antacid compounds can cause constipation, resulting in the potential need for laxatives.
Examples include: Gaviscon, Co-magaldrox

BLOOD PRESSURE MEDICATION

These medicines often control blood pressure by having an effect on the distribution of electrolytes, salts and water balance in the body. This can result in increased fluid loss from the body.
Examples include: Lisinopril, Ramipril, Losartan, Amlodipine, Felodipine, Bendroflumethiazide

DIURETICS

Diuretics are sometimes called 'water tablets' because they can cause you to pass more urine than usual. They work on the kidneys by increasing the amount of salt and water that comes out through the urine.
Diuretics are often prescribed for heart failure patients and sometimes for high blood pressure.
Examples include: Furosemide, Bendroflumethiazide

LAXATIVES

Laxatives are prescribed to treat or prevent constipation by loosening stools and increasing bowel movement. The different types of laxatives work in different ways. The choice of laxative prescribed will depend on the individual.
There are four main types of laxatives:

1. **Bulk-forming laxatives e.g. Fybogel** – these contain lots of fibre and work in the same way as fibre in the diet They retain fluid within the stool and increase the bulk, to encourage the bowels to push them out. It is important to drink plenty while taking Bulk-forming laxatives

2. **Osmotic laxatives e.g. Lactulose, Macrogol** - these soften stools by increasing the amount of water released into the bowels, making them easier to pass.

3. **Stimulant laxatives e.g. Senna, Bisacodyl -** these stimulate the bowels speeding up bowel movements, so less water is absorbed from the stool as it passes through the bowels.

4. **Stool softener laxatives e.g. Docusate** - these cause more water to be reabsorbed from the bowel, making the stools softer.

NON-STEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS) and ANTI- HISTAMINES

These medicines affect the distribution of electrolytes and salts in the body and so reduce swelling and inflammation associated with pain, injury and allergies. This can affect fluid balance in the body.
Examples of NSAIDS include: Ibuprofen, Naproxen, Diclofenac
Examples of anti-histamines include: Loratadine, Cetirizine, Promethazine, Hydroxyzine

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Medicines and Acute Kidney Injury

What is Acute Kidney Injury?

Acute kidney injury (AKI) is sudden damage to the kidneys that causes them to not work properly. It can range from minor loss of kidney function to complete kidney failure.
AKI can occur as a complication of another illness such as diarrhoea, vomiting. infections, flu, common cold and may occur in older adults who are unwell.

Causes of acute kidney injury:

Most cases of AKI are due to reduced blood flow to the kidneys.
This reduced blood flow could be caused by:

- **low blood volume** after bleeding, excessive vomiting or diarrhoea, or with severe **dehydration**
- **the heart pumping out less blood than normal** due to heart failure, liver failure or sepsis
- **problems with the blood vessels** such as inflammation and blockage in the blood vessels within the kidneys
- **certain medicines** can affect the blood supply to the kidney – other medicines may cause unusual reactions in the kidney itself

Older adults are more susceptible to AKI, particularly if they are at risk of dehydration and take regular medication that can be toxic to the kidneys.
These medicines are remembered by the mnemonic SADMANS

S SGLT-2 Inhibitors

A ACE-Inhibitors

D Diuretics

M Metformin

A Angiotensin-II Receptor Antagonists (ARBs)

N Non-steroidal anti-inflammatory drugs (NSAIDs)

S Sulphonylureas

SGLT-2 Inhibitors, If taken during an acute illness that can lead to dehydration, there is an increased risk of developing diabetic ketoacidosis.

ACE inhibitors (ACEI) and Angiotensin Receptor Blockers (ARBs) e.g. Ramipril, Lisinopril, Losartan, which reduce blood pressure, can affect how the kidney functions and how much salts are filtered out with the urine.

Diuretics e.g. Furosemide**,** can cause or worsen dehydration disturbing salt balance in the body and affecting kidney function.

Metformin, which is prescribed for diabetes, can accumulate within the bloodstream, causing a build-up of lactic acid if the kidneys are not working well. The risk of this can increase in those who are dehydrated.

Non-steroidal anti-inflammatory drugs (NSAIDs) e.g. Ibuprofen, Naproxen, used as pain killers, can affect certain kidney functions and can increase the risk of AKI.

Sulphonylureas, can accumulate in bloodstream, due to reduced clearance of the drug by the kidneys and increases risk of low blood sugars (hypoglycaemia)

Preventing acute kidney injury:

Those at risk of AKI should be monitored with regular blood tests if they become unwell or start new medication. Always inform the patient's GP if you suspect a medication is making your patient unwell.

Any warning signs of AKI, such as vomiting or producing little urine, requires immediate investigation for AKI and appropriate treatment. It is also useful to check how much urine they are passing.

People who are dehydrated, or at risk of dehydration, may need to be given more fluids orally or via a drip.

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