Patient information from BMJ

Last published: Mar 01, 2023

Hypernatraemia

If you've got hypernatraemia you don't have the right balance of water and sodium in your blood. It is often caused by dehydration.

Hypernatraemia can be extremely dangerous if not treated quickly, and many people with hypernatraemia don't survive. But hypernatraemia is usually the result of other serious health problems.

What is hypernatraemia?

Hypernatraemia means that your blood doesn't have the right balance of water and a mineral called **sodium**. It's often caused by lack of water (**dehydration**).

This means that the sodium in your blood, which is usually helpful, can now cause serious problems.

Why is sodium important?

Sodium helps to control how water flows through the cells in your body.

- If you've got **too little sodium**, too much water can flow into certain parts of your body. For example, too much water flowing into the brain can cause it to swell.
- If you've got **too much sodium (hypernatraemia)**, it can cause the brain to shrink. Both swelling and shrinking of the brain can be very dangerous in different ways.

Many people with hypernatraemia don't survive. But it's often too simple to say that hypernatraemia causes death. This is because hypernatraemia is often caused by other health problems, which can be life threatening by themselves.

They can include things like:

- Problems that cause severe **diarrhoea and vomiting**, which lead to water loss, and which also mean that people are unable to drink enough water, or to drink water without vomiting
- **Kidney problems**
- **Dementia**. People with dementia often don't drink enough fluids

- Conditions that affect someone's ability to feel thirsty. These can include **brain tumours** and other conditions that physically affect the brain
- A type of diabetes called **diabetes insipidus**, where the body struggles to retain water. This is rare, as most people with diabetes insipidus either have the condition under control, or have a normal thirst
- Things that make you sweat a lot, such as fever, heat exposure, and burns (these things don't usually cause hypernatraemia, but they can make it worse).

Hypernatraemia can also be caused by what's called **sodium overload**. This means that someone consumes, or is given too much sodium in a short period of time. This can happen in various ways, including:

- Being given too much fluid that contains sodium (usually slightly salty water, called **saline**) into a vein, while in hospital
- Problems with medicines that contain a lot of sodium
- Swallowing a lot of sea water. This can happen to people who are rescued from the sea
- Deliberately drinking bleach as an act of self harm
- Eating too much salt by accident. This usually happens when people mistake salt for sugar. This is especially dangerous for children
- Problems during kidney dialysis.

Medicines that can be linked to hypernatraemia include:

- Lithium, which is used to treat mood disorders such as bipolar disorder
- Diuretics. These drugs are used to treat conditions where too much water can build up in the body. But sometimes they can cause people to lose too much fluid
- Some laxatives, and
- Charcoal, which is used to treat some types of poisoning.

What are the symptoms?

Symptoms of hypernatraemia can be hard to spot. They usually depend on what has caused the problem.

For example, in older people, **dehydration** over time can lead to hypernatraemia. Symptoms of dehydration in older people can include:

- Dry mouth
- Feeling thirsty, and
- Dark-coloured urine.

Hypernatraemia that comes on very quickly - for example, because of sodium overload - can cause the brain to shrink. This can cause symptoms including:

- Tiredness
- Weakness, and

- Mood symptoms such as being irritable.

If brain shrinkage is severe, this can lead to seizures, coma, and death.

If your doctor thinks that you've got hypernatraemia, they will ask you about your symptoms and your general health. For example, they will ask about:

- Any medical conditions that you have
- Any medicines that you are taking, and
- How much fluid you have been drinking recently.

You will also need to have blood and urine tests. These tests can tell whether you've got hypernatraemia, and may also help to show what has caused it.

What treatments are available?

Treatment for hypernatraemia is aimed at treating what is causing the problem. For example, that may mean:

- Stopping or reducing any **medicines** at are causing hypernatraemia
- Giving medicines that can reduce **fluid loss**: for example, this can help for conditions such as diabetes insipidus
- Treating fever, which reduces the water loss caused through sweating
- Treating the cause of any diarrhoea and vomiting
- Stopping excessive sodium intake, and
- Increasing water intake when needed.

Your doctor will also monitor your sodium levels throughout treatment.

If you have hypernatraemia that is severe, or that comes on suddenly, you should be treated in hospital.

But if you have hypernatraemia that is mild, or that came on over a long period (for example, because of dehydration over time) you may be able to have treatment at home.

Replacing lost fluids

If someone has dehydration, it’s best to treat this simply by drinking more fluid. But if someone is unable to do this for any reason, they may need to given fluids by another method such as:

- Through a **nasogastric tube**. This is a feeding tube inserted into the nose, which leads down into the stomach, or
- Directly into a vein.

Treating sodium overload

If someone has consumed or been given too much sodium in some form, they need to be treated in two ways. These are:

- Flushing out the excess sodium. Drugs called diuretics can help with this, and
- Replacing the water that the diuretics have helped to flush out, either by drinking fluids, or by one of the methods described above.

What to expect in the future

About half of people with hypernatraemia do not survive. But this number doesn't tell the whole story. It's too simple to say that hypernatraemia on its own causes people to die.

What did you think about this patient information guide?

Complete the online survey or scan the QR code to help us to ensure our content is of the highest quality and relevant for patients. The survey is anonymous and will take around 5 minutes to complete.

BMJ Group