TEST

Antidiuretic hormone blood test

This blood test measures a hormone that helps your kidneys control body water.

WHAT IT MEASURES
Blood vasopressin, a hormone controlling kidney water retention

SAMPLE
Blood

FASTING NEEDED?
Sometimes, for water-deprivation or stimulation protocols

HOW LONG IT TAKES
Usually 10 minutes for a simple blood draw

RESULTS IN
Several days; timing varies by laboratory

USED FOR
Investigating abnormal thirst, urination, sodium, or water balance

MAIN LIMITATION
Vasopressin is unstable and strongly affected by collection conditions

Overview

The antidiuretic hormone blood test measures antidiuretic hormone, also called ADH, arginine vasopressin, or AVP. This hormone is made in the brain and released by the pituitary gland.

ADH controls how much water your kidneys return to your bloodstream. When ADH rises, the kidneys make less, more concentrated urine. When it falls, they produce more dilute urine.

The result is interpreted with blood sodium and blood and urine concentration, known as osmolality . Direct testing is difficult because ADH is unstable after collection. Some specialist centres instead measure copeptin , a more stable substance released alongside ADH.

Why the test is ordered

This is not a routine screening test. It may be ordered for:

Diabetes insipidus is unrelated to diabetes mellitus. It is also described as arginine vasopressin deficiency when the body releases too little ADH, or arginine vasopressin resistance when the kidneys do not respond properly.

An ADH result alone cannot diagnose syndrome of inappropriate antidiuretic hormone secretion, or SIADH. Diagnosis also depends on sodium, blood and urine osmolality, fluid status, medicines, and other possible causes.

- Unusually large amounts of dilute urine
- Persistent, excessive thirst
- An unexplained high or low blood sodium level
- Suspected diabetes insipidus
- A supervised test of water balance

Who should have the test

You may be offered testing if ongoing excessive thirst or urination remains unexplained after initial blood and urine tests, or if your sodium or osmolality is abnormal.

Some people need a supervised water-deprivation or stimulation test instead of a single measurement. These tests can cause significant changes in hydration or sodium and must only be performed under medical supervision.

How to prepare

Follow the testing centre's instructions, which depend on whether you are having a standalone blood draw or a specialist protocol.

Fasting is not always required. You may be asked to avoid food, fluids, smoking, caffeine, or strenuous exercise for a set period because they can affect hydration and ADH release.

Do not deliberately restrict water unless specifically instructed and monitored. Otherwise, arrive normally hydrated.

Provide a complete list of medicines and supplements, especially desmopressin, vasopressin, diuretics or "water tablets like furosemide or hydrochlorothiazide ," antidepressants like sertraline or fluoxetine , seizure medicines, and medicines affecting blood pressure or fluid balance. Do not stop any medicine unless the responsible clinician tells you to.

What happens during the test

A healthcare professional inserts a needle into a vein, usually in your arm, and collects blood

into a special tube. Because ADH breaks down easily, the sample may need to be chilled, processed promptly, and frozen.

During a water-deprivation study, staff may repeatedly measure your weight, urine volume, urine osmolality, blood sodium, and blood osmolality. Samples may be taken before and after desmopressin.

Some centres measure copeptin after stimulation with concentrated saline or arginine. This requires close monitoring and differs from an ordinary blood draw.

Understanding your results

There is no universal ADH reference range. Interpretation varies with the laboratory, hydration, medicines, pregnancy, sample handling, sodium, and osmolality.

The main question is whether your ADH level is appropriate for your blood concentration:

Your clinician will usually review the result with blood sodium and osmolality, urine volume and osmolality, fluid intake and losses, kidney function, thyroid and adrenal tests, medicines, and any stimulation-test results.

- When blood is concentrated or sodium is high, ADH should usually rise. A low or inappropriately normal result may support reduced ADH production but does not confirm the cause.
- If ADH is high but urine remains unusually dilute, the kidneys may not be responding normally. Kidney disease and medicines can cause similar findings.
- When blood is dilute or sodium is low, ADH should usually be suppressed. A measurable or high level can result from nausea, pain, low circulating blood volume, medicines, or other triggers and does not by itself establish SIADH.

What affects the results

ADH changes rapidly. Dehydration, vomiting, diarrhoea, sweating, bleeding, or restricted fluids can raise it, while drinking a large amount of water can lower it.

Pain, nausea, emotional stress, nicotine, and strenuous exercise can stimulate release. Intravenous fluids and pregnancy also affect water regulation.

Medicines including desmopressin, vasopressin, diuretics, some antidepressants, carbamazepine, and certain cancer medicines can alter ADH release, kidney response, or supporting results.

Reduced kidney function can make the pattern harder to interpret. Poor sample handling, including delayed processing or incorrect temperature, may allow ADH to break down and produce a falsely low result.

Accuracy and limitations

A single result may miss a problem because ADH changes from minute to minute, or appear abnormal because of dehydration, nausea, stress, or medication.

Assays differ between laboratories and may have difficulty measuring low concentrations. A value within the laboratory range can still be inappropriate when sodium or blood osmolality is high.

ADH testing alone cannot reliably distinguish reduced production, kidney resistance, and excessive water drinking. A supervised dynamic test may be more useful. Copeptin is more stable and may be measured after water deprivation, concentrated saline, or arginine stimulation, depending on the clinical question.

Risks and complications

A routine blood draw may cause brief discomfort, bruising, or light-headedness. Serious complications are uncommon.

Water-deprivation and stimulation tests can cause dehydration or dangerous sodium changes. They require supervision, repeated checks, and clear stopping rules.

What happens next

Your clinician will review the result with your symptoms, sodium, blood and urine osmolality, medicines, and fluid intake. An unexpected or borderline result may be repeated under controlled conditions.

Further assessment may include supervised water deprivation, copeptin testing, kidney or hormone tests, or pituitary imaging.

Contact your healthcare service promptly if thirst or urination is rapidly worsening, you cannot keep fluids down, or you are becoming significantly dehydrated.

Seek emergency help for a seizure, loss of consciousness, severe confusion, or difficulty waking. These can indicate a serious sodium disturbance.

Common questions

Can I drink water before an ADH blood test?

Usually yes for a standalone blood draw, but specialist protocols may restrict fluids. Follow your instructions and never attempt water deprivation on your own.

Can I drink coffee first?

Coffee can increase urination and affect hydration. Avoid it if asked to fast or control fluids; otherwise, check with the testing centre.

Does the time of day matter?

Fluid intake, blood concentration, sleep, stress, and posture usually matter more than time of day. Timing remains important in controlled protocols.

Can I exercise beforehand?

Avoid vigorous exercise shortly before testing because it can raise ADH and alter hydration.

Should I stop desmopressin or my water tablets?

Do not stop them yourself. They affect results, but stopping may be unsafe or interfere with the test.

Why might my clinician order copeptin instead?

Copeptin is released alongside ADH but is more stable in blood, so it can provide more reliable information during specialist testing.

Sources

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