

Water deprivation test

Background

The water deprivation test is conducted to see whether your child can concentrate their urine properly. The ability to concentrate urine, and therefore vary the amount of urine that is passed according to the situation, depends on a special hormone called the antidiuretic hormone (ADH).

This hormone is produced by the posterior pituitary gland and then moves to the kidneys to influence the formation of urine. If there is not enough ADH or if the kidney cannot respond properly to the ADH, a condition called diabetes insipidus may be present. In this condition, the child may drink a lot and pass large amounts of urine during the day and night.

Key points

Your child will:

- need to fast before the test
- stay fasting until the end of the test.
- If your child is unwell (fever, vomiting or diarrhoea), please phone the Day Treatment Unit on 6456 3772 to cancel and rebook.

Your child will need to undergo blood and urine tests as an outpatient before the test is arranged. These blood and urine tests will rule out any other conditions that could influence the results of the water deprivation test. It will also rule out other conditions that have the same symptoms. This usually involves an early morning blood and urine test. If these tests are normal, the water deprivation test can go ahead.

The water deprivation test always starts first thing in the morning. Then you will fast while awake for as short a time as possible. The fasting time may vary. The fasting time will have been discussed with you by your doctor.

Arrival

Please go to the Day Treatment Unit. It is on the first floor at Clinic E. Take the Yellow or Pink lifts.

Sometimes your child will be admitted overnight to the medical ward and moved to the DTU the next day. If this is necessary, your doctor will discuss this with you.

The Water Deprivation Test

This is a two part test:

1. a dehydration phase
2. a desmopressin/DDAVP phase



Part 1: Dehydration phase

Once admitted to the ACDF, local anaesthetic cream will be applied to your child's hand and/or inner elbow to numb the skin. This cream takes about an hour to work. An intravenous line can then be put in without causing any pain. A needle is used to insert the intravenous cannula. Once in the vein the needle is taken out. A plastic tube is left lying in the vein. This plastic tube should not cause any pain. Once in, it stays in for the whole test.

A baseline blood sample is taken at the start of the test and the child is weighed. Blood samples are taken every two hours using the plastic tube. All urine passed is collected and samples are sent to the laboratory. The child will be weighed after every urine collection and their heart rate, blood pressure and thirst will be recorded every hour. Blood glucose levels may also be measured regularly, especially in babies and toddlers. The child must be watched closely to make sure that they does not drink anything.

This part of the test ends when the child's urine becomes sufficiently concentrated which may take many hours. When the test is ended the child can eat and drink. The likelihood of the child having diabetes insipidus is then very low. If the child shows any signs of becoming dehydrated or the salt in the blood goes up, we move to the second part of the test, to see if the kidneys can respond to ADH.

Part 2: Desmopressin/DDAVP

In this part of the test, Desmopressin* is given by a nasal spray and one hour later blood and urine samples are taken to see if there has been a response. If there has, it means that the kidneys can respond to antidiuretic hormone (ADH).

After all the samples have been taken, the child may drink carefully. They will be kept in hospital until feeling well, with all vital signs, and blood and urine measurements being normal.

*Desmopressin is a synthetic copy of human ADH widely used for testing and in the treatment of diabetes insipidus.

Results

The results will be sent to your doctor in two-three weeks. You will receive these results at your next endocrine clinic or private endocrine appointment, or your doctor may phone you.



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Child and Adolescent Health Service

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