

Water Deprivation Test

Introduction

The water deprivation test allows doctors to measure how concentrated your child's urine becomes when he or she is not drinking. The test can take up to twelve hours to complete.

Indication

1. Your child needs this test to find out if he or she has diabetes insipidus.
2. Diabetes insipidus is caused either by inability of the pituitary gland (a small gland at the base of the brain) to release a hormone called antidiuretic hormone (ADH) which normally controls and prevents excess urine production, or by inability of your child's kidneys to respond to ADH to control urine production.

Preparation

1. Your child will be admitted to the ward on the day before the test, so that the doctors and nurses can prepare your child for the test, which starts in the early morning, and record your child's fluid intake and output.
2. If your child has any medical problems, particularly allergies, please tell the doctors about these. Please also bring in any medicine your child is taking, and show this to the doctor or nurse

Procedure

1. Your child will have an intravenous cannula inserted so that blood samples can be taken easily.
2. During the day and night before the test, the nurses will measure how much fluid your child drinks and how much he or she urinates. From 8am on the day of the test, your child will only be allowed to eat dry food, such as toast or biscuits, with very small amount of fluid (1-2 mouthfuls, less than 50ml with each meal).
3. The nurses or doctors will take samples of your child's blood before, every 1-2 hours during, and after the test from the cannula. Each blood sample will be sent to the laboratory with a urine sample. Your child will need to pass urine before, and every hour during the test. For children who cannot pass urine on demand, a urinary catheter may be inserted for urine collection. This will be removed after the test. Your child will need to stay in the ward so the nurses can observe him or her closely. The nurses will also weigh

your child and measure his/ her blood pressure before the start of the test and then every hour afterwards.

4. At the end of the test, the doctor will see your child and analyze the results of the body weight, urine output, blood and urine tests to assess whether your child has diabetes insipidus, and to discuss the results in detail with you.
5. If diabetes insipidus is confirmed, the doctors will prescribe a medicine called DDAVP, which is a synthetic drug similar to ADH. DDAVP can be given subcutaneously (by injection under the skin) or sublingually (under the tongue). If your child responds to this medicine with decreased urine output and improved blood results, he or she will be diagnosed to have neurogenic diabetes insipidus, where the pituitary gland is not releasing ADH. If neurogenic diabetes insipidus is diagnosed, your child will need to continue taking DDAVP.

If your child does not respond to this medication, he or she will be diagnosed to have nephrogenic diabetes insipidus, where the kidneys are not responding to ADH, and may need other medicines for treatment.

Complication Risk

1. There is a very small risk that your child could become seriously dehydrated, but as he or she will be closely watched in the ward, this is unlikely to happen. The test will be stopped if necessary.
2. Your child will probably feel tired and miserable during the test because he or she will not be allowed to drink liberally. It is important to continue the test so that we can get accurate results. However tempting it is, giving your child fluids to drink will mean the test will need to be stopped and rescheduled for a later date.
3. There is a small risk that your child could become dehydrated when you get home, especially if he or she is refusing food and drink and/or vomiting (being sick). Signs of dehydration include dry lips, pale skin, sunken eyes, or not passing urine. You can prevent dehydration by giving your child regular small drinks.
4. However the risk of dehydration is very small, because your child will be given adequate amounts of fluid for rehydration before discharge from hospital. For children with confirmed diabetes insipidus, treatment will be

started after the test, and will be discharged when he or she is stable on treatment.

Remarks

The list of complications is not exhaustive and other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For any queries or further information, please consult our medical staff.