

## Patient information

### **Hypertonic Saline Infusion Test for Hypotonic Polyuria – Polydipsia Syndrome (Diabetes Insipidus)**

Diabetes and Endocrinology Department – Royal Liverpool Hospital

#### **Why do I need the test?**

This is a screening test when hypotonic polyuria -polydipsia syndrome, previously known as Diabetes Insipidus is suspected because of your symptoms and other investigations that you have already had.

Diabetes Insipidus, referred to as D.I., is a condition where the kidneys are unable to control the amount of urine produced. It is very different from diabetes mellitus when there is too much sugar in the blood.

The amount of urine produced by the kidneys is regulated by a hormone called anti-diuretic hormone (ADH), or vasopressin. ADH is made by a part of the brain called the hypothalamus and is stored just below the brain, in the pituitary gland, until needed. ADH helps to retain water in the body by stopping the kidneys from producing urine. Adults usually pass around three litres (five pints) of urine per day.

#### **There are two types of Diabetes Insipidus:**

Cranial diabetes insipidus occurs when there is not enough ADH in the body to regulate the amount of urine produced. This is the most common cause of diabetes insipidus and may be as a result of pituitary surgery, brain tumour, infection, head injury or sometimes with no obvious cause.

Nephrogenic diabetes insipidus occurs when there is enough ADH in the body, but the kidneys fail to respond to it. This can run in families, or it can be caused by kidney damage.

#### **What are the symptoms?**

The two main symptoms of diabetes insipidus are an excessive thirst and needing to pass large amounts of urine. It is possible for you to pass as much as 20 litres (35 pints) in 24hrs.

#### **How is it diagnosed?**

You will be invited to come into hospital for either arginine or concentrated saline stimulated Co-peptin test. Both arginine and concentrated saline can stimulate the pituitary gland to secrete AVP hormone. Since we cannot directly measure this hormone, we usually measure the by-product called co-peptin. Copeptin particularly the stimulated levels can help to determine whether you have DI and if so, whether the problem is at the pituitary level or at the kidney level.

## **Are there any alternate tests?**

There are number of tests available, the arginine test is the safest and the most up to date one to diagnose this condition. On rare occasions when arginine is contraindicated for any reason or when you have already had the arginine test and the results are inconclusive, you will require the concentrated saline test.

## **What are the risks/side effects?**

It is necessary to be aware of some of the serious risks involved with this test.

This test can cause severe dehydration in some people.

The saline may induce inflammation of the veins at the site of the infusion.

Most commonly experienced side effects are sustained malaise, headache, dizziness, nausea, and vomiting.

## **What happens before the test?**

You will be invited to attend the Medical Day Case Unit located at Broadgreen Hospital, having fasted from midnight prior to the test.

You must not eat, drink any tea/coffee/alcohol or smoke from midnight until after the test is completed.

You may drink water up until two hours before the test and then nothing at all until after the test.

You must stop taking any desmopressin (antidiuretic medication) or diuretics for at least 24 hours prior to the test

You can continue your usual pituitary hormone replacement

## **What happens during the test?**

On the day of your test nurse will check your details, weigh you and explain the test to you. You will be on the ward for about four hours and supervised by the nurse.

You should remain fasted throughout the test, no food or drink in any form are allowed during the test.

Your blood pressure and pulse will be checked at the start and throughout the test.

A nurse will put a small tube (cannula) into your vein and blood samples will be taken through this tube, which means you will not have to have lots of needles. There will be another cannula in the opposite arm, to run the saline infusion.

We will take blood sample to measure the sodium levels in your blood before we proceed with the test. After the initial sample is taken, a concentrated saline infusion will be started to run over two hours. Blood samples will then be taken at half an hour interval for maximum of two hours.

If the sodium level reaches to the desired level before two hours, the test will be completed before two hours.

You will be asked to void bladder to record the volume of your urine and a sample will be sent to the lab both at the beginning and at the end of the test.

The staff members will record your thirst level throughout the test.

You can have food, drink and DDAVP (if already taking) after the test is completed but avoid ingestion of large volumes of fluid.

We will check your sodium levels one hour after completing the saline infusion and you will be allowed home once your sodium is in the normal range. If the sodium level remains outside the normal range at this point, you may have to stay in the unit for a little longer until it normalises.

### **What will happen after the test?**

Once you have completed the test, the results will be reviewed by endocrine doctors, and they will contact you directly if necessary.

Further investigation and management will be discussed in the endocrine clinic.

### **Feedback**

Your feedback is important to us and helps us influence care in the future.

Following your discharge from hospital or attendance at your Outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

### **Further Information**

**If you have any query or do need to speak to doctors, please contact on call endocrine doctor via hospital switch board:**

**Tel: 0151 706 2000**

**Text phone number: 18001 0151 706 2000**

**If you have any worries or questions about the test or the date is inconvenient, please contact the Medical Day Case Unit**

### **Medical Day Case Unit**

**Telephone Number: 0151 706 2396**

**Text phone Number: 18001 0151 706 2396**

### **Opening Hours:**

**07:30 – 20:00 Monday to Thursday**

**07:30 – 16:00 Friday**

All Trust approved information is available on request in alternative formats, including other languages, easy read, large print, audio, Braille, moon and electronically.

يمكن توفير جميع المعلومات المتعلقة بالمرضى الموافق عليهم من قبل انتمان المستشفى عند الطلب بصيغ أخرى، بما في ذلك لغات أخرى وبطرق تسهل قراءتها وبالحروف الطباعية الكبيرة وبالصوت وبطريقة برايل للمكفوفين وبطريقة مون والكترونياً.

所有經信托基金批准的患者資訊均可以其它格式提供，包括其它語言、易讀閱讀軟件、大字

體、音頻、盲文、穆恩體 ( Moon ) 盲文和電子格式，敬請索取。

در صورت تمایل میتوانيد کلیه اطلاعات تصویب شده توسط اتحادیه در رابطه با بیماران را به اشکال مختلف در دسترس داشته باشید، از جمله به زبانهای دیگر، به زبان ساده، چاپ درشت، صوت، خط مخصوص کوران، مون و بصورت روی خطی موجود است.

زانباري پيوهنديدار بهو نهخوشانهی له لایمن تراستهوه پهسهند کراون، نهگهر داوا بکریت له فۆرماتهکانی تردا بریتی له زمانهکانی تر، نیزى رید (هاسان خویندنهوه)، چاپی گهوره، شریتی دهنگ، هیلې موون و ئهلیکترۆنیکي همیه.

所有经信托基金批准的患者信息均可以其它格式提供，包括其它语言、易读阅读软件、大字体、音频、盲文、穆恩体 (Moon) 盲文和电子格式，敬请索取。

Dhammaan warbixinta bukaanleyda ee Ururka ee la oggol yahay waxaa marka la codsado lagu heli karaa nuskhado kale, sida luqado kale, akhris fudud, far waaweyn, dhegeysi, farta braille ee dadka indhaha la', Moon iyo nidaam eletaroonig ah.