Insertion of Lumbar Drain for Patients with Normal Pressure Hydrocephalus
What is Normal Pressure Hydrocephalus?

Normal pressure hydrocephalus is a syndrome characterized by a triad (number) of symptoms consisting of unsteadiness and decline in mobility, memory disturbances and memory control. Cerebrospinal fluid pressure is normal but the ventricular system is enlarged on CT & MRI imaging.

What is the ventricular system?

The ventricular system is the fluid filled cavities in your brain that act as a reservoir and drainage system for Cerebrospinal fluid.
What is a Lumbar drain?

A lumbar drain is a piece of flexible tubing that is placed in the Lumbar spine which is connected to an external drainage system to drain Cerebrospinal Fluid (CSF). CSF surrounds the brain and spinal cord and acts amongst other things as a cushion to protect them.

Why am I having this test?

In patients with suspected Normal Pressure Hydrocephalus, a lumbar drain trial which consists of draining the cerebrospinal fluid over a period of 2-3 days can help determine whether or not you would benefit from surgery to continually drain cerebrospinal fluid. If this is the case, then this will be discussed with you at a later date.

What does the test involve?

It involves an inpatient admission to the ward for 3-4 days. Prior to insertion of the lumbar drain you will undergo a series of tests which include some blood tests, a memory test, and a 10 metre timed walk using your usual walking aids and you will also be assessed by the physiotherapists. Following this you will undergo insertion of the lumbar drain which will stay in for approximately 2-3 days. During your stay you will see the Hydrocephalus nurse specialists daily.

Are there any risks to the test?

You will sign a consent form prior to the lumbar drain insertion consenting to the procedure and that you understand the risks. The most common risk is tenderness to the area of the drain or back pain for a short period after the insertion, leg pain if the drain is against a nerve (this will resolve once the drain is removed). CSF leak or bleeding from the insertion site, infection and headache are less common. If you do experience any of the above, please inform the nurse/ doctor who is looking after you.
**Insertion of a lumbar drain includes the following:**

You will be asked to lie on your side on the edge of the bed, and the doctor will position you correctly and mark the area where the spinal needle will be inserted with a marker pen. The back will be covered with a sterile drape and the insertion site will be thoroughly cleaned with antiseptic solution.

You will be given a local anaesthetic in and around the insertion site, this may sting at first then the area will become numb.

Once the area is numb, the spinal needle will be inserted in the area marked and directed toward the spinal canal. This may need to be redirected until the correct space is reached.

You will feel a dull pressure as the needle is advanced. If you feel any pain you must remain still and let the doctor know so they can give you more local anaesthetic.

Once the needle is in the correct space, the flexible tubing will be inserted through the needle; the needle will be removed with the tubing left in the spine. The tubing will then be secured on to the skin with a stitch and covered with a clear sterile dressing.

The tubing will be connected to an external drainage system and set a level requested by the team and the ward staff will measure the drainage hourly.

Once the drain is in, you may sit out in a chair or mobilise to the bathroom with the nursing staff so long as the drain is clamped. You MUST always alert the nursing staff by using your nurse call bell before changing position or standing once the drain is in as this will cause you to drain too much fluid and could cause unwanted side effects.
**Will I experience any side effects?**

Some patients experience side effects from the drainage. The most common are tenderness around the insertion site, headache and occasionally nausea especially when upright. This is because we are draining off excess fluid that your brain is not used to draining. If you experience any of these, inform the staff looking after you so that they can liaise with the doctor, check the amount drained and adjust the drain height if necessary. We advise that you drink plenty of fluid while you are undergoing this test to remain hydrated and prevent headache. If you do experience a headache, the staff will provide you with pain relief and anti-sickness should you experience any of these side effects.

**What happens when the drain is removed?**

Once the drain is removed, a stitch will be inserted into the drain site which will be removed in 7 days by your local district nurse/ GP surgery. The 10 metre timed walk and the memory test will be repeated and compared to the tests prior to the lumbar drainage. If there has been an improvement in your walking and bladder function (if this was a problem prior to the lumbar drainage), the consultant may offer you surgery to put in a shunt (an internal CSF drainage system).

This may be done during the same admission or you will return for planned surgery at a later date. If you are offered surgery, you will see the Hydrocephalus nurse specialists who will discuss the procedure and provide you and your family with the relevant information and you will undergo a pre-operative assessment in the outpatient department.

If your mobility does not improve or you have had no benefit from the drainage, unfortunately there is no surgical option that will improve these symptoms.

Therefore, you would be referred back to the Neurologist or to your GP for further Investigations and this will be discussed with you prior to discharge by the consultant.
If I have a problem following discharge, who do I call?

If you have any further questions or concerns following the lumbar drain trial, please contact the Hydrocephalus Nurse Specialist Team on 0151 525 3611 and ask for Bleep 5340 for advice and support. If it is out of hours, please contact your GP.
The Brain Charity offers emotional support, practical help, and social activities to anyone with a neurological condition and to their family, friends and carers. Tel: 0151 298 2999

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