

## **Lumbar Puncture:**

A lumbar puncture (LP) is a procedure used to obtain a sample of cerebrospinal fluid (CSF). CSF is the fluid that bathes and protects the brain and spinal cord. It is produced constantly, so that the small amount (approximately 4 milliliters (ml)) removed during an LP is rapidly replaced. A LP is carried out in order to look for evidence of infection or an inflammatory process going on.

Before this procedure, you will be assessed by a member of the neurology team to ensure you do not have any current infections or symptoms that may make the LP either inappropriate or potentially harmful for you. A doctor will explain how the LP is performed and you will be given the opportunity to ask questions. You can at any time refuse to have the LP done for any reason. Please inform the doctor if you think you are pregnant.

### **How is the LP performed?**

LP can be carried out on a general ward in a hospital bed. The doctor will usually position you on your side at the edge of the bed, with your knees curled up to your stomach, trying to keep your back at right angles to the bed. Occasionally the procedure is performed in a sitting position. There is no need for sedation or a general anaesthetic.

### **What will I feel?**

The skin of the lower back is cleaned with an antiseptic – **please state if you are allergic to iodine**. The antiseptic feels wet and cold. A local anaesthetic is then injected under the skin with a very fine needle, this will usually sting for a few seconds and then numb the area. You may then feel a sensation of pushing or pressure as the lumbar puncture needle is inserted and sometimes a brief, sharp pain when the needle is moved forward. It is normal to experience such a pain, often down one leg and this does not indicate anything wrong (if anything, it means the doctor is in the right place as the needle will have touched a nerve – it is almost impossible to actually cause damage to a nerve during this procedure). The pain should stop within a few seconds but if it persists you should let the doctor know. Even if there is discomfort it is important to try not to move. Once the needle is correctly positioned, the doctor will measure the pressure and collect samples for sending to the lab for testing. The entire procedure usually takes about 20 minutes.

Additionally, we will also take a blood sample for testing and comparison with your CSF. It will be obtained by a needle in one of the large veins at the front of your elbow region in the arm. The risks associated with blood testing are minimal, including bruising at the site of vein puncture, inflammation of the vein and possible infection. This will be minimized by having experienced doctors performing the test and care will be taken to avoid these complications.

Following the lumbar puncture, you will be advised to drink plenty of fluids, including caffeinated drinks. It is often advised to lie flat in bed for approximately two hours. If you feel OK you can get up and about gently. It is recommended to take things easily for a couple of days and drink plenty of fluids.

### **POTENTIAL RISKS AND BENEFITS:**

#### **1. Headache**

One of the commonest side effects is a headache. This is known as a post-LP headache and is caused by the removal of CSF (cerebrospinal fluid). This occurs in up to 10% of patients and typically starts within 1 to 2 days of the LP. Symptoms are always worse when standing up and characteristically significantly eased by lying down.

If you experience a post-LP headache you should lie down as much as possible and rest. You need to keep drinking plenty of fluid. Painkillers should not be needed if you stay flat most of the time. You would not normally need to seek medical advice as this most commonly settles within a couple of days. If however it persists or is severe it is worth seeking advice from the doctors or staff on the ward where the LP was performed, as persistent low pressure headache may be very debilitating but if treated early with intravenous caffeine infusion, it typically settles immediately. This occurs in about 1% of cases.

#### **2. Infection / fever**

Extremely rarely, people may develop an infection following a lumbar puncture that can be serious. Whenever a needle has punctured the skin there is a low risk of infection being introduced. This is minimised by cleaning the area before the procedure and by good hygiene practices. If you become feverish following a LP you should seek immediate medical attention from your doctor or A+E.

### **3. Backache**

Backache can occur in up to a third of patients. It is almost always mild and settles over a few days. Simple painkillers such as paracetamol may be helpful but should be limited to just a few days. It is exceptionally rare that a LP causes damage to the nerves in the back. If you develop numbness or tingling in the legs you should contact your GP or A+E. If you have any concerns about the information contained in this leaflet please speak to the one of the doctors involved in this study.

### **4. Dermoid formation**

Occasionally where the LP needle has been introduced you may develop a small lump in the skin

### **5. Risk of Bleeding**

With a LP there is a risk of bleeding occurring (subarachnoid or epidural haemorrhage). This risk is increased if you are on anticoagulants such as heparin or warfarin or if you have a bleeding disorder. *If you have not already mentioned any of these problems to the medical team on this occasion please make them aware before they carry out the LP.*

### **6. Risk of eye nerve damage**

Extremely rarely a cranial nerve (VI) that controls eye movements may be damaged following an LP. This may result in double vision. This may be temporary or permanent.

### **7. Risk of pressure cone**

This again is an extremely rare complication and will happen when there is a mass in either your spine or head area. For this reason if you have evidence of this a CT brain scan will usually be done before you have an LP to make sure it is as safe as possible to proceed.