



## **Information About** **Intracranial Pressure Monitoring** **(ICP Bolt)**

You may be asked to have ICP Monitoring which is also known as an ICP Bolt if IIH is a suspected diagnoses or if you are diagnosed and having pressure problems (high or low). ICP Bolt is often used rather than a Lumbar Puncture this is because it gives a much more accurate picture of your Intracranial Pressures over a period of time, rather than a snap shot in time which a Lumbar Puncture would be. Although it is more accurate than an LP it can not give a 100% accurate picture this is due to the fact that you cannot move around as much once connected to the ICP Bolt monitor, you are restricted to bed and bedside movements only are able to be recorded.

It's a very small operation to insert the ICP Bolt which would take place in the operating room so it's sterile conditions. Very often patients only require sedation with a local anaesthetic inserted around the Bolt site, however some patients do have a full general anaesthetic, your surgeon and anaesthetist will decide with you the best method to use. The actual procedure takes no more than 30mins to do, afterwards you may have a slight headache and soreness around the site but most patients say it's less painful than having a LP. The ICP Bolt will stay in place for a minimum of 24-48hrs but can stay in for as long as 7 days if it's required to establish a good amount of pressure readings.

### **How is the ICP Bolt inserted?**

If you are having sedation for the procedure the anaesthetist will firstly insert a cannula into a vein, you will then start to have the sedative injected into the cannula. The anaesthetist will keep asking you questions and talking to you this is important as they need to asses your level of alertness, when they decide you are at the correct state they will allow the surgeon to begin. They will be with you at all times during the procedure.

If you are having a general anaesthetic you will also have a cannula inserted and you will be put to sleep.

The surgeon will then shave a very small area (less then the size of a 10p) where the ICP Bolt will be placed, some local anaesthetic will then be injected into the site to numb the area they are going to work in. They will then drill a small hole in the numbed area where the ICP catheter with a sensor wire tip will be threaded into the hole and a locking

Information About Intracranial Pressure Monitoring mechanism that looks like a DIY bolt you would use to hold wood etc together. This will then be stitched in place to stop it falling out. The device has a long length of wire with a connector on the end this is then plugged into the ICP Monitor. The procedure is now complete; you will be taken to the recovery area to ensure you are fully awake and well enough to return to the ward. Once on the ward you will have your ICP Monitor connected to a laptop which will record your pressure readings continually whilst you are connected. You will be shown how to unplug yourself from the laptop so you can use the bathroom etc and when you return you must plug yourself back in.

Whilst you are connected to the laptop and ICP Monitor you will see your numbers going up and down all the time so do not be alarmed by this. You will especially notice rises in your pressure if you do anything that requires your body to strain i.e. cough, sneeze, blow nose, vomit, laugh or cry etc. All of these recordings will eventually be printed as a graph for your Neuro-Surgeon to analyse; this will help the next step in your treatment and care.

### **What is considered the normal range when having ICP Monitoring?**

ICP Monitoring normal range is considered to be -5 - 15mmHG, it's measured slightly different to an LP as that is measured in cmH<sub>2</sub>O. Although that is considered the normal range its important to remember that everybody is different therefore what one person feels is high or low pressure may not be the same for the next person. Also you may have what is considered the normal range yet still have symptoms; again this is due to everybody's body being different so sometimes they have to look at a bigger picture and your symptoms etc to be able to plan the next step in your treatment and care but your Neuro Surgeon will discuss this with you.



*Picture of an ICP Bolt*