

# Implantation of Electrodes for Epilepsy

## *University Neurosurgery Information Sheet*

### **General Indications of the Procedure:**

To better control epilepsy, the seizure focus must be localized. Localization of the seizure focus can be achieved through the placement of intracranial electrodes. Once localized, there may be a second operation requiring surgery to treat the seizure focus.

### **Description of the Procedure:**

The procedure begins with general anesthesia to put the patient to sleep. This will also involve endotracheal intubation (tube down the throat). The patient's head is shaved to allow for opening the scalp and entering the cranial bone. Entrance to the cranial bone is sometimes done through small holes and sometimes done through a larger opening called a craniotomy, where the bone is removed and then replaced at the end of surgery. Electrodes can be placed just beneath the bone or can be placed on top of the brain in the subdural space. Sometimes the electrodes are placed within the brain itself in a procedure called depth electrodes. The neurologist and neurosurgeon will determine and discuss the best electrode placements based on the patient's situation. The operation typically lasts a few hours and requires an overnight stay in the intensive care unit. After surgery, EEG monitoring for anywhere from 3 to 14 days will help localize the seizure focus. At that time, the decision regarding proceeding with a seizure focus removal or simply removing the electrodes, having gained more information about the seizure focus, will be made jointly with the patient.

### **Risks of Procedure:**

Intracranial electrodes, by their nature, are brain surgery, which has inherent risks. General risks of any operation of this nature include, bleeding, infection and anesthesia. More specific risks depend on where the electrodes need to be placed, but include neurologic injury to the area being monitored, no benefit, no definitive operation performed and harm caused by bleeding or infection, which can involve any neurologic injury, coma or death. Also, removing these electrodes requires a second operation which can be done at the time of a definitive operation for the seizure focus removal or simply removing the electrodes at a second operation.

### **Procedure Alternatives, if any:**

Continue with current medical therapy for epilepsy.

### **Probable Consequences of Refusing the Procedure:**

Current symptoms will persist and may worsen.

### **Person(s) Performing the Procedure:**

The surgical team for this procedure is large. This involves, but is not limited to, the attending surgeons, resident surgeons, surgical nurses, physician assistants, surgical technologists and anesthesiologists. Everyone involved will be performing important tasks related to the surgery in accordance with the hospital policies, and based on their skill set and under the supervision of the responsible practitioners.