

## The Electrophysiologic (EP) Study

One of the key procedures commonly employed is the electrophysiologic study. This is a procedure where intravenous catheters are placed, usually from the vein in the groin area, so that they can be advanced into the right side of the heart. In the right side of the heart, recordings can be made that give a very clear picture of the normal sequence of electrical activation within the heart.

In addition, the heart can be stimulated in a variety of ways in an attempt to elicit abnormal rhythms if they exist. Among the abnormal responses can be the induction of rapid heart rhythms that can give important information regarding arrhythmia mechanism, prognosis, risk of serious symptoms, response to medications, etc.

### "An Outpatient Procedure"

The procedure produces results that can be analyzed either during the study or within minutes of its completion. It typically lasts between 1 and 2 hours. In most cases it involves mild sedation only. Because it is only an intravenous procedure, involving punctures that are similar to typical IVs, there is only a short period of time after the procedure that the patient must remain at bed rest. It can commonly be done in the out-patient setting unless the patient has risks of serious arrhythmias or is ill in another way.

### What you can expect during the EP Study

Electrophysiology testing makes it possible to study heart rhythm disturbances under controlled circumstances. By using special insulated wires - called catheters - the doctor is able to identify your rhythm disturbance and choose the best method of treatment.

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#### Before the procedure starts

At some time prior to the test, an intravenous (IV) line will be started. This IV is useful for two reasons, 1) it provides a convenient way to administer medications and 2) it can be used to give extra fluid if your body needs it.

Next, the area where the catheters are to be placed (in the groin, arms or neck) will be cleansed with an antiseptic solution. Sterile towels and sheets will be placed over you from your neck down past your feet, leaving exposed only the area where the catheters will be inserted.

#### During the procedure

The doctor will prepare the area of catheter insertion by injecting a numbing medicine. You will feel some stinging for 30 seconds or so, but once the medication takes effect, you should not feel any discomfort. After the area is numb, catheters will be placed (one to four of them) which will be guided into different parts of your heart using a special x-ray machine. This machine allows the physician to watch the catheters as they are moved into place. Part of the x-ray machine will be placed directly over your body. Because the staff are exposed to x-rays daily, they will be wearing protective lead aprons. You will receive only intermittent low dose x-rays.

After the catheters are in position, the doctor will evaluate your heart rhythm disturbance by giving your heart small electrical impulses (by artificial pacemaker through one of the catheters) to make your heart beat at different rates. You may feel your heart beating very quickly, or experience "skipped beats". It is the doctor who is doing this and you should not be alarmed. However, if you experience any chest pain or discomfort, please let the staff know.

As the doctor continues to artificially pace your heart, a rapid heart rhythm may be initiated. It is very important that the doctor know how you feel at this time. In some cases, the rapid heart rhythm disturbance may continue. You may actually pass out, but this will be for an extremely short period of time. A small electric shock may be required to restore your normal rhythm. Although it may be frightening to think about these aspects of the procedure, most patients do not report experiencing any pain. Some people do not even realize that they have passed out.

### **After the procedure is finished**

When the EP study has been completed, which usually takes about 2 hours, the doctor will remove the catheters. To prevent bleeding, pressure will be applied to the catheter insertion site for 5 minutes. A small sterile dressing will be applied which can be removed the next day. No stitches are required. The results of the test may be discussed with you in the lab or after you have returned to your room.