

## Gamma Knife Radiosurgery

Your doctor has recommended a procedure called Gamma Knife radiosurgery. This procedure is used to treat cancerous and non-cancerous conditions in the brain without having to make an incision (cut).

With the Gamma Knife, pinpoint beams of radiation called gamma rays are focused precisely on the area in the brain being treated. Each beam is fairly weak by itself. When combined, the beams work together to focus their power on tumors and abnormal blood vessels. The gamma rays are silent and invisible. You won't feel them as they pass through your scalp and skull to the area in the brain that needs treatment.

## Preparing for Gamma Knife Radiosurgery

You will meet the members of the treatment team before the day of your radiosurgery. The team includes your neurosurgeon, radiation oncologist, nurses, and physician's assistants. Certain testing is required, which may include blood work, urine testing, and magnetic resonance imaging (MRI).

Someone will talk to you about the procedure and will show you an informational video. Any questions you have will be answered at this time. You will then be asked to sign a consent form for the treatment.

You will be told not to eat or drink after midnight the night before your procedure. You may take your usual medication with sips of water on the morning of your surgery.

You will be told to wash your hair the night before surgery. Do not wear makeup, nail polish, or jewelry to the procedure. You may wear loose-fitting clothes or a hospital gown during the procedure.

## The Day of Your Radiosurgery

A family member or friend should come with you to the hospital on the day of your procedure. He or she will wait in the Gamma Knife waiting room. After your Gamma Knife procedure is over, the neurosurgeon will visit or telephone your family member or friend in the waiting room to say that the procedure is over and to explain your progress or condition.

You will be taken to the Gamma Knife suite. You will need to remove eyeglasses, contact lenses, wigs or hairpieces or dentures.

The Gamma Knife nurses are trained to provide care throughout your procedure. They will attach a blood pressure cuff, an oxygen monitor (pulse oximetry), and electrocardiographic (EKG) leads to you. These devices will monitor your blood pressure, breathing, and heart rate during the procedure. An intravenous (IV) line will be started. Adults may be given mild sedatives; young children are given general anesthesia.

## Fitting the Guiding Device

A guiding device will be fixed firmly on your head to make sure that the Gamma Knife beams are focused where they should be.

This device is shaped like the outline of a box and is called a stereotactic frame. It is held in place on your skull by four pins, two in the forehead and two in the back of the head. Putting this on your head is uncomfortable, but only for a short time. An anesthetic cream will help to numb your skin locally, and the doctor will inject additional medication where the frame will be attached. The guiding device will stay on your head until after your Gamma Knife treatment is complete.

## Additional Treatment Planning

After the guiding device is on, you will have imaging studies to help the surgeon plan your treatment. You may have an MRI, a computed tomography (CT) scan, or an angiogram.

After you are back in the Gamma Knife suite, a clear plastic helmet with many holes in it will be placed on your head over the frame. This helmet is a model of the Gamma Knife helmet, which will be used during the actual procedure. The holes in the plastic model help the team measure where the gamma rays will focus.

Next, you will rest on the Gamma Knife bed for a period of one to four hours while the doctors examine the results of imaging studies and measurements and plan your radiation dose. Nurses will help you remain as comfortable as possible.

After final plans have been made for administering your radiation dose, you will be positioned so that the guiding device holds your head securely in the Gamma Knife helmet. You now are ready for treatment.

## Administering the Treatment

The nurses and doctors caring for you will go to the outer room to administer your treatment. You will be able to talk with your nurses and doctors through a microphone in the Gamma Knife helmet. A camera in the Gamma Knife room allows them to see you at all times.

The Gamma knife bed will move into treatment position. The treatment will last between 10 minutes and one hour. You will not hear or feel the treatment.

## After Radiosurgery

After the treatment, the guiding device will be removed. Sometimes there is a little bleeding at the pin sites. A few patients need stitches. Bandages will be applied, and your head will be wrapped in gauze.

Some patients have a headache or feel nauseous after the procedure. If you experience these symptoms, tell the nurse. He or she will give you medication to help lessen these effects.

You will recover in the Gamma Knife suite for approximately one and a half hours then you will be discharged home. Most patients are discharged within 24 hours. When you start drinking fluids, the IV will be removed. Discharge instructions will be provided by the neurosurgical team.

If you are discharged on the same day as your procedure, you should have a family member drive you home. He or she should stay with you and care for you the first night you are home.

You will be given follow-up instructions by your surgeon prior to discharge.