



## CT Scans: An Overview

### What is a CT Scan?

A CT (computed tomography) scan is a noninvasive medical test that uses special x-ray equipment to produce multiple images or pictures of the inside of the body and a computer to join them together in cross-sectional views of the area being studied. CT scans of internal organs, bone, soft tissue and blood vessels provide greater clarity than conventional x-ray exams.

#### Common Uses

CT scanning is commonly used to diagnose problems such as cancers, cardiovascular disease, infectious disease, trauma and musculoskeletal disorders.

#### Safety

CT examinations are an essential part of diagnosis and treatment planning. However, there are some risks associated with the level of radiation exposure during a CT and therefore the medical benefit of conducting the exam should always outweigh any risks involved.

The risk for pediatric patients is likely to be greater than that for adults, and dedicated CT protocols are in place at MV Hospital to minimize their exposure. Other strategies for minimizing radiation dose from CT for all patients include avoiding unnecessary CT examinations, utilizing alternate imaging modalities when appropriate, such as Ultrasound or MRI and using state-of-the-art CT radiation dose reduction technologies.

### What should I expect BEFORE my CT Scan?

#### Medications

It is important for you to keep to your regular medication schedule. Please take all the medications that have been prescribed to you by your doctor. Just let our staff know what medications you have taken prior to your test.

#### Food and Drink

You should not eat solid foods for two hours prior to your test. You may, however, drink plenty of fluids, such as water, broth, clear soups, juice, or black decaffeinated coffee or tea. We encourage you to drink plenty of fluids before your arrival to our center.

#### When to Arrive

If you are having a CT scan of your abdomen or pelvis, you will have been given a batrium drink and instructions when you scheduled the appointment and you need to arrive 15 minutes before your test is scheduled. The barium completely coats your gastrointestinal tract and helps to highlight body areas for the CT scan. If you are having a scan other than the abdomen you should arrive 15 minutes prior to your scheduled scan.

#### What to Wear

You should dress in comfortable clothing. It might be necessary for you to change into a hospital gown if there is metal in your clothing, such as a bra or zipper, within the area of interest of your study. If you are wearing jewelry or anything else that might interfere with your scan, we will ask you to remove it. The CT scan is conducted in a very secure environment. It is best, however, if you leave valuable items at home.

#### Diabetic Conditions

If you are an insulin-dependent diabetic, please continue to take your insulin as prescribed, but remember to drink extra fruit juices to make up for the fasting of solid foods for the 2-3 hour period that your stomach is empty. Patients who are taking diabetic medications should take the prescribed dose as normally done on that day, but discontinue the next doses for 48 hours AFTER their CT exam. Patients

should notify their Primary Care Physician that they were instructed to discontinue their medication for 48 hours. Patients should consult with their primary care physician prior to resuming diabetic medications.

### **Intravenous Preparation**

Many patients receive a contrast agent intravenously (IV) during their CT test. If your doctor or the radiologist has determined that this procedure will enhance your CT scan results, the technologist will place an IV in your arm or hand prior to going into the test. (Please see the section on “Contrast Medium” below.)

## **What will I experience DURING my CT Scan?**

### **Scanning**

Your CT technologist will bring you into the CT scan room where you will lie down on the patient table. The technologist positions your body so that the area you are having scanned is in the middle of the large doughnut-shaped scanner ring which holds the x-ray tube and an electronic detector. The technologist leaves the room, but is in full view and communication with you through the observation window in the adjoining room. The scanner does not touch you, nor do you feel the x-rays. It does make some noise and the table you are lying on may move slightly to make adjustments for a better view. It is important for you to lie very still and at some points, you may be asked to briefly hold your breath as the picture is taken. During the scan, a thin beam of x-ray is focused on a specific part of your body. The x-ray tube moves very rapidly around this area, enabling multiple images to be made from different angles to create a cross-sectional picture. The x-ray beam information goes to the electronic detector and then into a computer, which analyzes the information and constructs an image for the radiologist to interpret.

### **Length of Scan**

Each CT scan is individualized and tailored to each patient's needs. In general, the actual image-taking is only about one minute and most examinations last approximately 15 minutes in total.

### **Contrast Medium:**

Contrast mediums, or contrast agents, highlight your organs and blood vessels and help the radiologist see them better. In the past, most contrast agents contained higher levels of iodine. The new contrast agents available today have lower iodine content, which greatly reduces the chance of an allergic reaction and most of the discomforts associated with the injection. The advantage of our state of the art scanners is that they maximize the efficiency of the contrast medium, which tends to dilute fairly quickly into your bloodstream. Since our scanners are so quick, it is possible to take all pictures while the contrast medium is still in a high concentration, which produces better images.

## **What should I expect AFTER my CT Scan?**

You have no restrictions after having a CT scan and can go about your normal activities. To help eliminate the contrast medium from your body, drink plenty of decaffeinated or non-alcoholic beverages. Water and juices also work well.

## **CT Scan Results**

All CT scans are read by a radiologist specialty trained in CT imaging and dedicated to the specific area of interest for your study.

Rapid results are essential not only for your peace-of-mind, but also for your physician to begin planning your treatment immediately, if necessary. After the scan has been read the results are sent to your physician, who will discuss them with you.