



Diagnostic Procedures

Radiology (X-Ray)

Most X-rays such as X-ray of bones, chest X-ray, cervical X-ray, X-ray of kidney, ureters, bladder, and abdomen do not require contrast medium. Other kinds of X-ray, such as X-ray of the GI system and renal system, require contrast medium for outlining the area of scan. The most common types of contrast medium are barium sulphate and iodine.

Computerized Tomography (CT)

CT is a medical imaging method using X-ray images taken from many angles. The X-ray beams are detected by the scanner and analyzed by a computer. The computer reconstructs the data into a picture of the body area being scanned. These images can be viewed on a monitor or reproduced as photographs. Some common uses are for the evaluation of tumors, infections, kidney stones, or appendicitis.

Ultrasound

This is a non-invasive procedure that is useful for imaging soft tissue such as organs of the digestive, endocrine, circulatory, and reproductive system. It uses very high frequency sound waves that are beyond the range of human hearing. The waves enter an organ and “echoes” are produced that provide diagnostic information when converted to a visual display on a computer screen.

Magnetic Resonance Imaging (MRI)

MRI uses a powerful magnet to absorb signals given off by the body, and then records these signals by use of a scanner. This device is able to take high quality images of the entire body without exposing the patient to X-rays that are required by most of the scanners. This test provides clear images of tumors of the brain and spinal cord, detailed images of the heart and major blood vessels and blood flow. Examination of joints and soft tissue particularly of the knee is another useful role of MRI. Patients having MRIs cannot have any metal implants such as pacemaker.

Nuclear Medicine

Nuclear Medicine tests evaluate the function of an organ or system. To produce a nuclear image, a substance normally used by the organ or system is made radioactive by the injection of a radiotracer. Two appointments are required. One appointment is required for the patient to receive the radiotracer and the second appointment is to perform the scan.

Neurology Procedures

The procedures measure the electrical activity of the brain. EEG (electroencephalogram) aids in the diagnosis of conditions such as tumour, epilepsy, brain damage, brain death, and seizure disorders. EMG (electromyogram) aids in the



diagnosis and evaluation of neurological disorders such as multiple sclerosis, Parkinson's disease, muscular dystrophy, and myasthenia gravis.

Cardiology Procedures

ECG (electrocardiogram) records the heart's electrical current using electrodes from 12 different leads. This test identifies conduction abnormality and dysrhythmias, monitors recovery from MI and helps evaluate the effectiveness of cardiac medications.

A Holter Monitor is a portable device to record the electrocardiographic activity of a client for an extended period of time, such as 24 to 48 hours. The resulting electrocardiographic recording is used for the analysis for abnormalities and is correlated with the documented activities and symptoms to help diagnose or rule out abnormalities.

ETT (exercise tolerance test /exercise stress test) measures the efficiency of the heart during a period of physical stress on a treadmill or on a stationary bicycle. The effects of exercise on cardiac output and myocardial oxygen consumption are evaluated by concurrent monitoring of ECG, blood pressure, and oxygen consumption.

Echocardiogram is a non-invasive, acoustic imaging procedure that determines the size, shape, position, thickness, and movements of the heart valves, walls, and chambers during each cardiac cycle.

Vascular Procedures

Doppler ultrasound is used to detect arteriovenous disease by evaluating the blood flow of the veins and arteries. While tests such as carotid duplex, vascular duplex and leg bypass graft duplex scans are performed by the Ultrasound Department, sometimes other diagnostic methods such as imperceptible electric current or infrared light is used to evaluate the presence and location of venous flow abnormalities. The later procedures may be performed in the Vascular Clinic or at the patient's bedside by a vascular technologist.

Pulmonary Function Tests

These tests are performed by respiratory therapist. Spirometry tests involve the measurement of forced vital capacity, forced expiratory volume etc. The lung volume tests involve the measurement of peak expiratory flow rate, total lung capacity, and residual volume.

Endoscopy

An endoscopy is the visual examination of a body cavity or organ by the use of an endoscope. This may be done through a natural opening or through a small incision. An endoscope is a flexible instrument which consists of many small glass fibers that transmit light and also permit the physician to see clearly through it. Biopsy instrumentation attached to the endoscope allows for specimens to be obtained for laboratory analysis. Examples of endoscopy procedures are: esophagoscopy, gastroscopy, sigmoidoscopy, colonoscopy, and bronchoscopy.

