

Bone scintigraphy is an easy noninvasive method. The major function is to image changes of bone metabolism due to the uptake of radiopharmaceutical. Technetium -99m (^{99m}Tc) -labeled diphosphonates are the most widely used radiofarmaceuticals. The distribution of these tracers reflects blood flow and bone formation. Tracer that does not localize to bone is cleared by the kidney. Primary and secondary bone tumors, osteomyelitis and fractures are the most common indications for bone scintigraphy. Contraindication is pregnancy. Disadvantage of the bone scintigraphy is a low specificity of examination.

The work explains a working content of a technologist at the department of the nuclear medicine. Patient preparation and techniques are described. Skeletal scintigraphy may include radionuclide angiography and tissue phase at early phase, which is followed by skeletal phase imaging at late phase. This technique is called three phases scintigraphy. Standard bone scan is obtained 2-5 hours later after intravenous injection of radiotracer. A nuclear medicine specialist can decide after inspection the whole-body (WB) examination about addition single photon emission computed tomography (SPECT) or even SPECT/CT at newer scanners. These techniques provide a better anatomic localisation and may improve sensitivity and diagnostic accuracy of bone scintigraphy.

A part of work is composed by evaluation of contribution the modern hybrid technique SPECT/low dose CT which is located at Clinic of Nuclear Medicine and Endocrinology in Motol Hospital. 49 consecutive oncologic patients were included who underwent bone scintigraphy in 2007 and new or unclear foci with abnormal bone activity were detected on WB scan. Assessment of foci could require further workup because a definite etiology could not be established. Thus SPECT/low dose CT was completed. Changes of the bone activities were caused by benign etiology at 26 patients (53%), at 13 patients (27%) were present metastases.