

AbstractID: 10051 Title: SPECT and PET/CT for cardiac imaging

SPECT and PET/CT for cardiac imaging
Timothy Turkington, Ph.D.
Duke University Medical Center

Single photon emission computed tomography (SPECT) and positron emission tomography (PET) both provide means of cardiac health. SPECT is currently widely used for cardiac applications, whereas PET, whose oncologic use has grown rapidly over the last ten years, is not yet widely used for cardiac applications but is particularly well-suited for several measurements of interest. Measurements include blood perfusion, viability, ejection fraction, and wall motion defects. The addition of CT to both SPECT and PET systems enhances cardiac imaging for multiple reasons, including fast attenuation correction and the potential for providing additional information available from CT scans such as CT angiography. There are potential pitfalls related to CT-based attenuation correction.

We will review the basic physics of SPECT and PET imaging, including degrading factors and potential corrections. In addition, we will discuss the range of cardiac imaging techniques available for SPECT and PET. Finally, we will discuss nuclear medicine instrumentation specifically designed for cardiac applications.

Educational Objectives:

1. Understand the basic physics of SPECT and PET imaging.
2. Become familiar with SPECT and PET/CT cardiac applications.
3. Understand the benefits of dedicated cardiac imaging systems.

Research sponsored by GE Healthcare.