

Head-to-head comparison of non-invasive coronary artery imaging

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For patients presenting for the first time with suspected coronary artery disease (CAD) clinicians have had a number of non-invasive diagnostic tests to choose from, but little evidence for which is best.

Now, findings from the PACIFIC trial may offer some guidance.

The first head-to-head comparison of the most commonly used non-invasive techniques to evaluate myocardial perfusion or [coronary artery stenosis](#) severity found that [positron emission tomography](#) (PET) had more diagnostic accuracy than either single photon emission computed tomography (SPECT) or coronary computed tomography angiography (CCTA), researchers reported during a Hot Line session at ESC Congress 2016.

"At present, there is little consensus about the choice of non-invasive imaging modality, and European and US guidelines do not advocate for any one over another," said Ibrahim Danad, MD, from VU University Medical Center, Amsterdam, who presented the findings.

"The vast majority of studies used invasive coronary angiography as a reference standard, which may lead to erroneous interpretations. These data represent the first comprehensive evaluation of [coronary artery disease](#) and will help to guide the clinician to choose the appropriate non-invasive test for his or her patients."

PACIFIC (which stands for Prospective Head-to-Head Comparison of

Coronary CT Angiography, Myocardial Perfusion SPECT, PET, and Hybrid Imaging for Diagnosis of Ischemic Heart Disease using Fractional Flow Reserve as Index for Functional Severity of Coronary Stenoses) was a single centre study that included 208 patients with suspected CAD.

Initially, all patients underwent the gold standard diagnostic test – invasive coronary angiography - which requires threading a catheter into the [coronary artery](#) to obtain x-rays and assess intracoronary pressure (fractional flow reserve, or FFR).

This test showed that 44.2% of patients had hemodynamically significant CAD.

Patients then received non-invasive PET, SPECT and CCTA as well as some "hybrid" combinations of PET and CCTA or SPECT and CCTA designed to combine functional and anatomical assessments.

Comparing results of these non-invasive results to the gold standard results, investigators showed that PET was significantly more accurate (85%) for diagnosing coronary ischemia as compared to CCTA (74%, P

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