

Results from the FORECAST trial reported

17 October 2020

In the FORECAST randomized clinical trial, the use of fractional flow reserve management derived from computed tomography (FFRCT) did not significantly reduce costs but did reduce the use of invasive coronary angiography (ICA).

Findings were reported today at TCT Connect, the 32nd annual scientific symposium of the Cardiovascular Research Foundation (CRF).

FFRCT is a novel, validated, [non-invasive method](#) for describing both the amount of coronary atheroma from a CT coronary angiogram (CTCA), but also vessel-specific ischemia derived from the CTCA and other clinical parameters using a fluid dynamics computer model. Previous studies have indicated that FFRCT reduces the uptake of invasive angiography that shows no significant CAD, without compromising [patient safety](#). The clinical effectiveness and economic impact of using FFRCT instead of other tests in the evaluation of patients with stable chest pain has not yet been tested in a randomized trial, although based upon cost models on [observational data](#), FFRCT is already recommended in routine clinical practice by National Institute for Health and Care Excellence (NICE) in the UK, because it appeared cost dominant.

The primary endpoint of the FORECAST trial was resource utilization derived from non-invasive cardiac tests, invasive angiography, [coronary revascularization](#), hospitalization for a cardiac event, and cardiac medications at nine months. Prespecified secondary endpoints included major adverse cardiac and cerebrovascular events, revascularization, angina severity, and quality of life (QOL).

In the trial, 1,400 patients with stable chest pain at 11 UK centers were randomized to receive either CCTA with FFRCT of lesions with stenosis severity of 40% or greater (test arm, n=699) or routine assessment as directed by the NICE Guideline for Chest Pain of Recent Onset (reference arm, n=700). The routine assessment arm included a

mixture of non-invasive tests, including CCTA (without FFRCT) in 61.4% of subjects. The mean age of the overall population was 60 (25-89) years and 52% were male. Baseline demographics, angina status, and QOL/health status were similar between the groups.

In patients presenting with new onset stable chest pain, a strategy of CTCA with FFRCT, when compared with a strategy of routine care, did not significantly reduce average total costs in the NHS system (£1,605.50 vs. £1,491.46, p=0.962). At nine months, the number of patients in the test arm who underwent the following non-invasive tests were: CTCA (674), FFRCT (220), stress echo (13), perfusion scan (4), stress MRI (15), exercise ECG (27). The number of patients in the reference arm who underwent these tests were: CTCA (460), FFRCT (9), stress echo (124), perfusion scan (34), stress MRI (20), and exercise ECG (99). A total of 22% fewer patients in the [test](#) group had invasive coronary angiography (ICA) compared to the reference group (136 vs. 175, p=0.01). There was no significant difference in the rates of MACCE or revascularization.

"Results from FORECAST indicate that CTCA and FFRCT as a frontline strategy may not be associated with the financial savings projected from observational data by NICE," said Nick Curzen, BM (Hons), Ph.D., Professor of Interventional Cardiology, University of Southampton, United Kingdom. "However, the reduction in invasive coronary angiography is important and will be very attractive to patients. More data is needed to determine the optimal use for FFRCT in clinical practice."

Provided by Cardiovascular Research Foundation

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