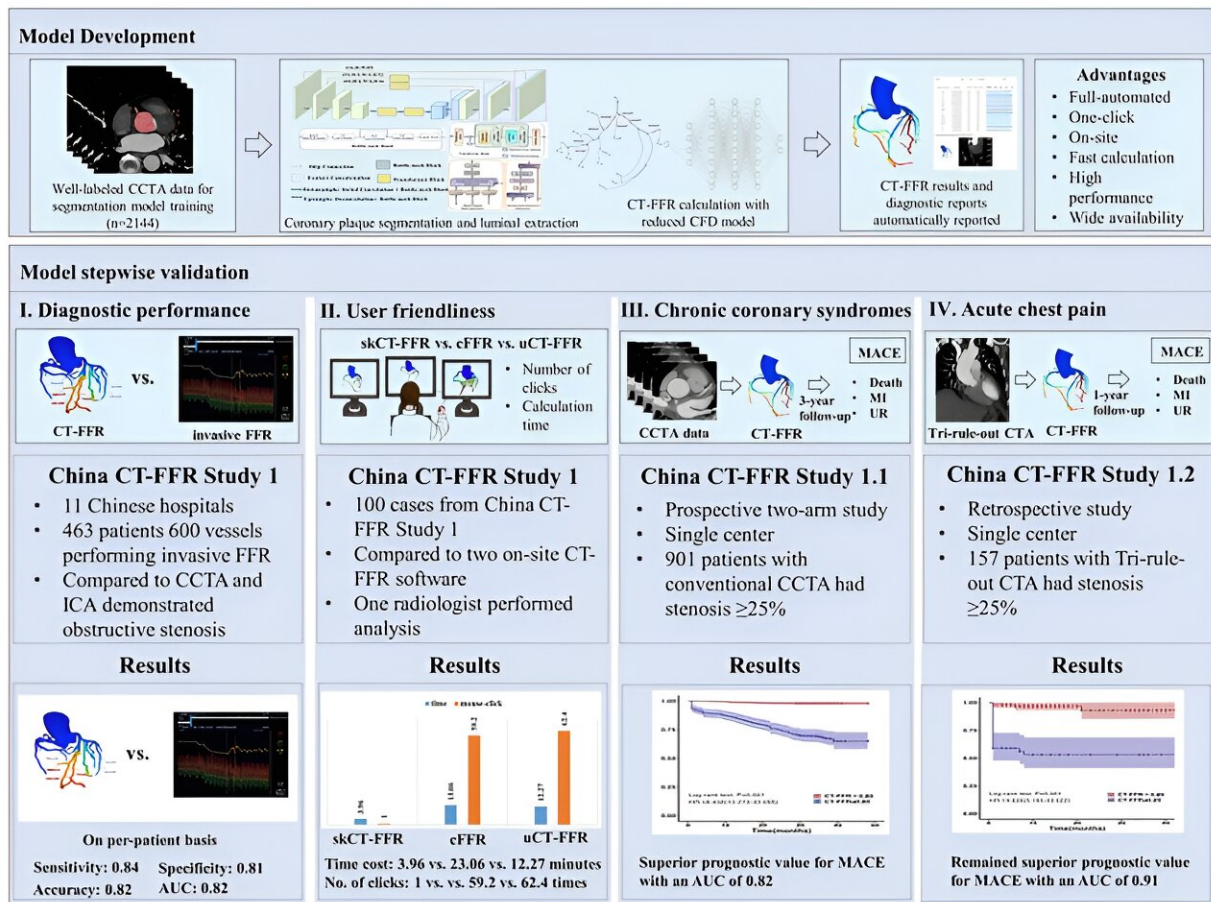# Fully-automated one-click on-site CT-FFR: A tool for evaluating patients with coronary artery disease

April 26 2024

Study design and brief results of this study. Credit: Science China Press

In a 3-stage study, three cohorts were used for diagnostic performance, and prognostic performance evaluation for this fully automated, one-click, on-site CT-FFR technique. The study was led by Professors Long Jiang Zhang and Guang Ming Lu (Department of Radiology, Jinling Hospital, Affiliated Hospital of Medical School, Nanjing University). The work is published in the journal *Science Bulletin*.

In cohort 1, a total of 463 patients and 600 coronary vessels with CCTA images and following invasive fractional flow reserve (FFR) results were collected for diagnostic performance and user-friendliness evaluation. CT-FFR had a strong correlation with invasive FFR both on a per-vessel basis and per-patient basis (Pearson R = 0.68, 95% CI: 0.63–0.72 and Pearson R = 0.70, 95% CI: 0.65–0.75, P 0.80) both in participants with chronic coronary syndromes and ones with acute chest pain.

This is the first reported fully-automatic CT-FFR technique, and demonstrated similar diagnostic performance compared to HeartFlow and Siemens CT-FFR technique.
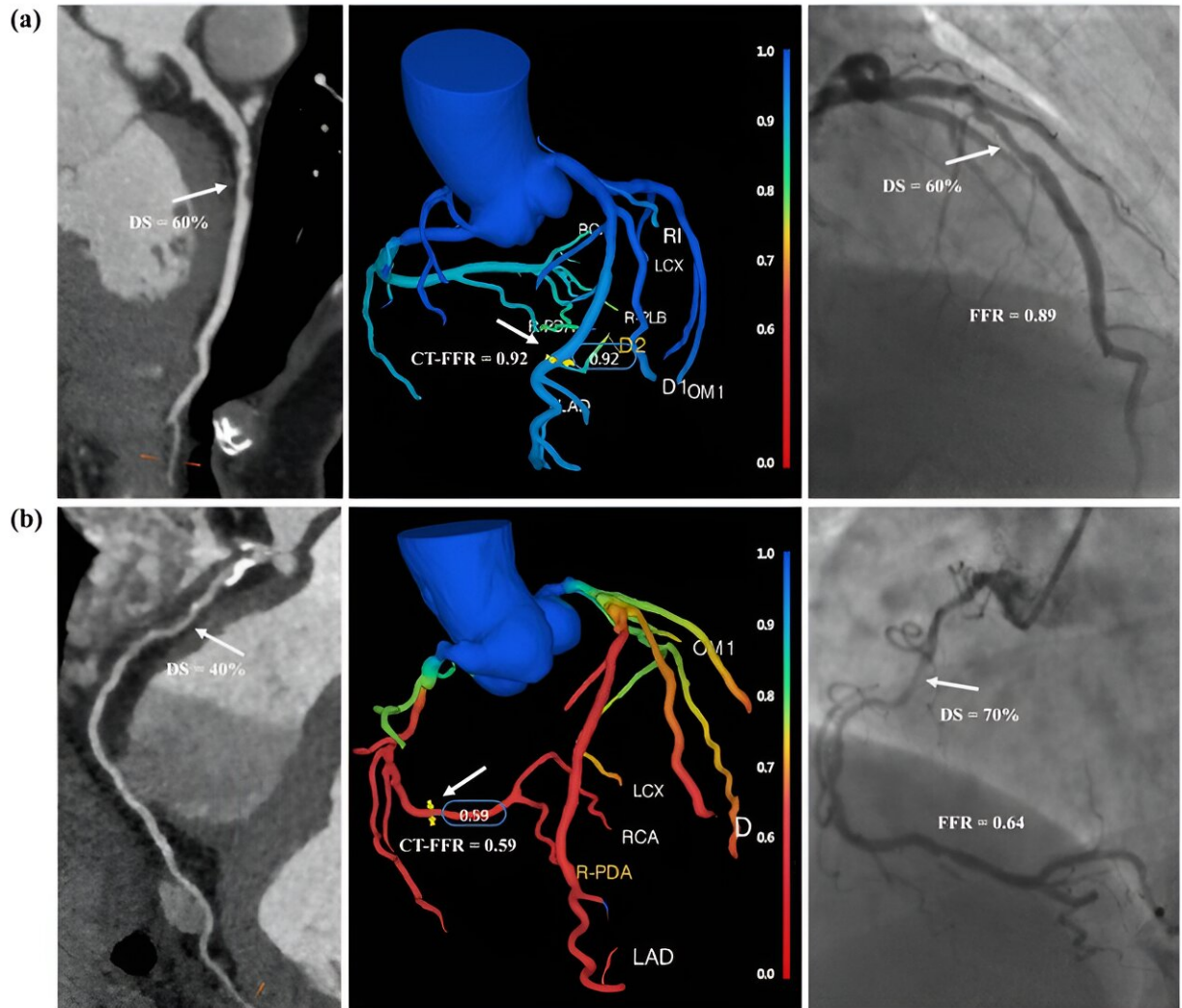
Panel (a): A 74-year-old man had a moderate (60%) stenosis of proximal left anterior descending artery on CCTA, and invasive coronary angiography was subsequently performed and demonstrated a moderate stenosis (60%) by visual assessment. CT-derived fractional flow reserve (CT-FFR) and invasive fractional flow reserve (FFR) measured at 2 cm distal to the lesion were 0.92 and 0.89, respectively. Panel (b): A 61-year-old man had a mild (40%) stenosis of proximal right coronary artery on CCTA, and invasive coronary angiography demonstrated a diffuse severe stenosis (70%) by visual assessment in the proximal right coronary artery. CT-FFR and invasive FFR measured at 2 cm distal to the lesion were 0.59 and 0.64, respectively. Credit: Science China Press

Provided by Science China Press

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