RESEARCH SUMMARY

Fractional Flow Reserve or Intravascular Ultrasonography to Guide PCI

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CLINICAL PROBLEM

Fractional flow reserve (FFR) and intravascular ultrasonography (IVUS) are the two most common tools used as adjuncts to coronary angiography for guiding decision making regarding percutaneous coronary intervention (PCI). A head-to-head comparison of the two approaches with respect to clinical outcomes is needed.

CLINICAL TRIAL

Design: A multinational, prospective, randomized, open-label trial examined whether FFR guidance would be noninferior to IVUS guidance in patients with intermediate coronary stenosis.

Intervention: 1682 adults with intermediate stenosis (40–70%) in a target vessel ≥2.5 mm by visual estimation on coronary angiography were assigned to FFR guidance or IVUS guidance. In the FFR group, PCI was performed if the FFR was ≤0.80; in the IVUS group, PCI was performed if the minimal lumen area was ≤3 mm^2 or ≤4 mm^2 with a plaque burden of >70%. The primary outcome was a composite of death from any cause, myocardial infarction, or any revascularization at 24 months.

RESULTS

FFR guidance was found to be noninferior to IVUS guidance with respect to the primary composite outcome. The FFR group had a lower incidence of target-vessel PCI during the index procedure.

LIMITATIONS AND REMAINING QUESTIONS

- The study included low-risk patients with a mean SYNTAX score of <10, indicating low anatomical complexity of the coronary lesions, so the findings may not apply to higher-risk patients.
- Operating physicians were aware of the assigned treatment; this could have influenced the frequency of revascularization during follow-up.

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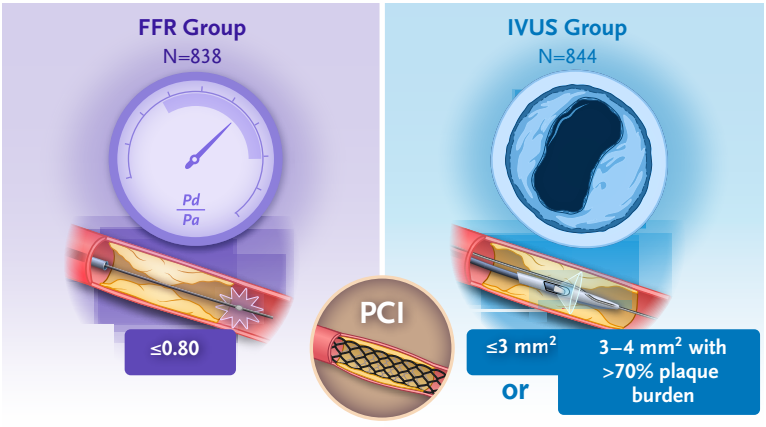
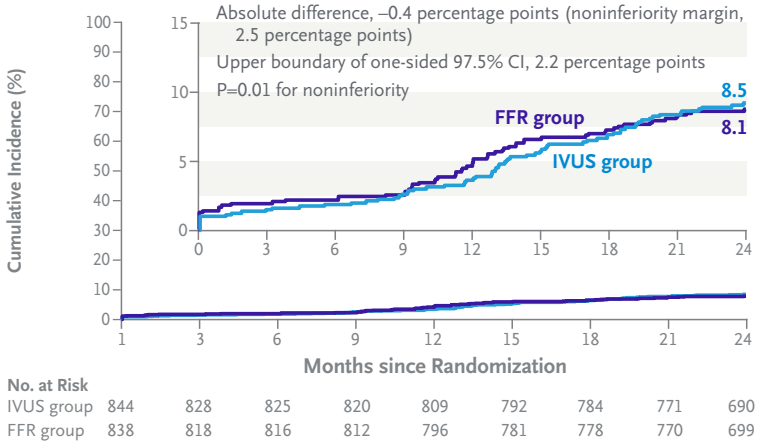
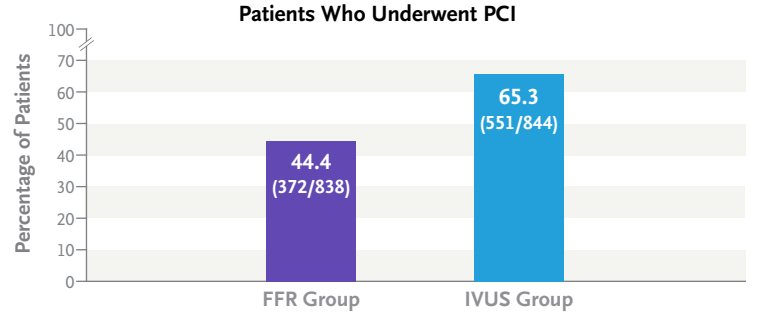


Death from Any Cause, MI, or Revascularization at 24 Mo



Patients Who Underwent PCI



CONCLUSIONS

Among patients with intermediate coronary stenosis, FFR guidance was noninferior to IVUS guidance with respect to a composite of death, myocardial infarction, or revascularization at 24 months, with a lower frequency of stent implantation during the index procedure.