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Wendakoon O, Mahmoudi M

Cardiology, Faculty of Medicine, University of
Southampton, Southampton General Hospital,
Southampton UK

A systematic review on intravascular ultrasound-guided percutaneous coronary intervention versus angiography-guided percutaneous coronary intervention with regards to clinical endpoints.

Background

Despite much evidence to dignify the use of intravascular ultrasound (IVUS)-guided percutaneous coronary intervention (PCI), angiographic guidance remains adopted as the gold-standard intervention. Although IVUS has outwitted angiography with cross-sectional imaging, offering greater detail of vessel and plaque make-up, reports evaluating clinical outcomes were not driven to compare the impact of both technologies on key clinical endpoints.

Aims

This systematic review aims to compare IVUS-PCI and angiography-guided PCI, focusing on key clinical endpoints: myocardial infarction, repeat coronary revascularisation, admission to hospital with acute coronary syndrome, mortality and stent thrombosis.

Methods

Searches were conducted across MEDLINE (Ovid), Embase, PubMed and Cochrane Library. Randomised controlled trials were identified and screened for eligibility based on the PICOS criteria. Eligible articles underwent full-text screening, with inclusion/exclusion criteria applied. Study quality was assessed using RoB 2, with an independent researcher further contributing to the evaluation.

Results

5,177 records were initially retrieved. Deduplication and manual exclusion resulted in 68 articles eligible for full text screening. Trials were allocated a JADAD score and 14 relevant studies were selected for this review. Minimum stent area and target vessel failure were examples assessed as primary endpoints, although major adverse cardiac events were more frequently discussed, where key clinical outcomes were identified.

Conclusions

IVUS-guided PCI is linked with better long-term patient outcomes across key clinical endpoints when compared to angiography-guided PCI. Future trials should be multicentred, have a larger sample size and involve electronic randomisation to optimise reduction in bias. Trials must have consistent long-term follow-up times in order to validate differences in key endpoints between IVUS and angiography.

Biography

A 3rd year medical student at the University of Southampton with a keen interest in cardiology. He has completed a BSc in medical research, focussing on interventional cardiology, and gaining valuable insight into cutting-edge procedures and clinical applications. He has a strong desire in contributing towards innovative research and patient care in the field.