



<b>Title</b>	<b>A Multicentre Randomized Controlled Trial of Minimally Invasive Direct Coronary Bypass Grafting Versus Percutaneous Transluminal Coronary Angioplasty With Stenting for Proximal Stenosis of the Left Anterior Descending Coronary Artery</b>
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<b>Reference</b>	Health Technol Assess 2004;8(16). Apr 2004. <a href="http://www.ncchta.org/execsumm/summ816.htm">www.ncchta.org/execsumm/summ816.htm</a>

## Aim

To compare the clinical and cost effectiveness of minimally invasive direct coronary artery bypass grafting (MIDCAB) versus percutaneous transluminal coronary angioplasty (PTCA) with stenting in patients with proximal stenosis of the left anterior descending coronary artery. The trial was called AMIST, ie, Angioplasty versus Minimally Invasive Surgery Trial.

## Conclusions and results

One hundred participants were randomized, 50 to PTCA and 50 to MIDCAB. This was 28% of the planned sample size. There were no serious imbalances in characteristics between groups. Six randomized participants did not receive the assigned interventions. Median times to intervention were 35 days and 44 days for PTCA and MIDCAB ( $p=0.18$ ). There were no conversions to surgery in the PTCA group, but three conversions to median sternotomy in the MIDCAB group. Two deaths occurred in the MIDCAB group, but no other major adverse events. Statistically significant differences existed between the medians for the two groups for total, post-procedure, and intensive care length of stay (all  $p<0.0001$ ). Eighty-four randomized patients completed 12 months followup, and median followup was 20.5 months. The duration of followup did not differ between groups for randomized patients ( $p=0.84$ ). All randomized participants were included in the primary analysis of survival free from cardiac-related events. Estimated cumulative percentages experiencing events at 1 year for MIDCAB and PTCA groups were 7.1% and 9.2% respectively (hazard ratio 0.77, 95% CI 0.38 to 1.57,  $p=0.47$ ).

Differences between groups in mean Seattle Angina and Coronary Revascularization Outcome Questionnaire scores at 3, 6, and 12 months after the index procedure favored MIDCAB, but were small and most failed to reach statistical significance. Differences in SF36 and EuroQol favored MIDCAB, but were again small and usually not statistically significant.

Total NHS procedure costs were £1,648 and £946, and the costs of resources used during one year of followup were £1,033 and £843, respectively for MIDCAB and PTCA. The difference in utility between the groups after 12 months followup was not statistically significant. Based on NHS costs, the incremental cost-utility ratio for MIDCAB was £44,600 per (EuroQol) QALY, and rose to £58,724 if patient costs were included. We found no evidence from AMIST that MIDCAB is more effective than PTCA. MIDCAB was clearly a more expensive procedure. Given the small and nonsignificant differences in effectiveness between MIDCAB and PTCA, and the higher costs of MIDCAB, it is unlikely that MIDCAB represents a cost effective use of resources in the reference population. Our main caution in interpreting these findings arises from the small sample size; a real difference in effectiveness of the size hypothesized may exist, but the trial had insufficient power to detect it. There were few complications with either intervention.

## Methods

RCT; further details of the research methods can be found in the monograph.

## Further research/reviews required

Details of the recommendations of the research can be found in the monograph.