

SCIENTIFIC LETTER

Why do UK cardiac surgeons not perform their first choice operation for coronary artery bypass graft?

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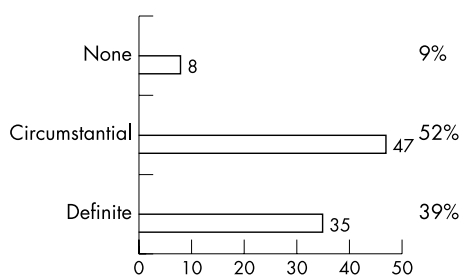
For the past 15 years the "standard" coronary artery bypass graft (CABG) operation for multi-vessel coronary artery disease has used the left internal mammary artery and supplemental saphenous vein segments for conduits.¹ However, increasing evidence suggests that arterial conduits have superior patency rates to vein grafts² leading to improved survival and reduced need for reintervention.^{3,4}

It is therefore surprising that the uptake of multiple arterial grafts for CABG remains poor. Of 23 000 first time isolated multi-vessel CABG procedures reported in the 1999-2000 database of the Society of Cardiothoracic Surgeons of the United Kingdom and Ireland (SCTS), around 3600 (little over 15%) used more than one arterial graft.

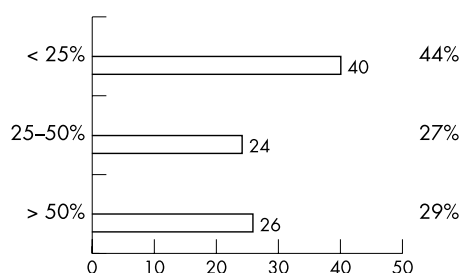
We conducted a postal survey of UK consultant cardiac surgeons to identify what factors contributed to the relatively low proportion of patients receiving multiple arterial grafts.

METHODS

Consultant cardiac surgeons with a predominantly adult practice were identified from the registry of the SCTS. An anonymous postal survey of 142 consultants was carried out in two mailings. A series of questions with fixed possible responses were asked in a brief format. The specific questions and response options are detailed in questions 1-4 and the corresponding figures below.



Question 1 Is there any evidence to show an advantage of using multiple arterial grafts: none; circumstantial; definite.



Question 2 What percentage of your patients might benefit from multiple arterial grafts: < 25%; 25-50%; > 50%.

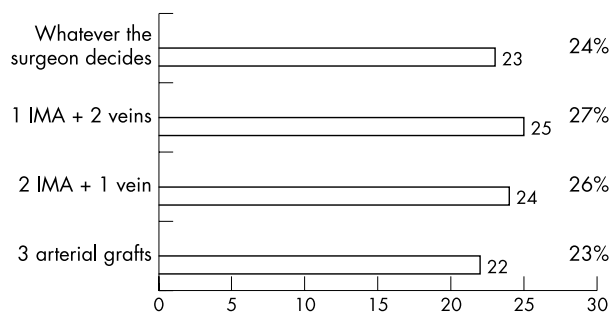
RESULTS

Ninety replies were received (63%). The number of responses to each option is illustrated in the figs. In question 3 some respondents indicated more than one choice and these were all included.

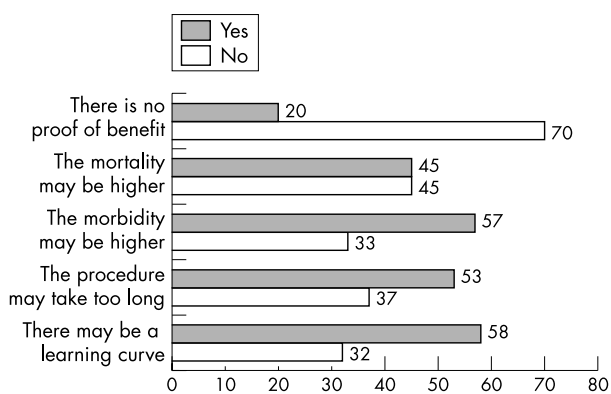
DISCUSSION

Around 85% of first time isolated multi-vessel CABG procedures performed in the UK today do not utilise more than one arterial graft. The relatively low proportion of multiple arterial grafts implies that surgeons do not feel there is a good case for their use in all but a small proportion of patients.

The results of this survey, however, reveal that most surgeons actually believe that there is at least circumstantial evidence of benefit with multiple arterial grafts, with over one third citing definite evidence. This is substantiated by the first part of question 4 where only a minority of surgeons (22%) cite lack of benefit as a reason for not performing multiple



Question 3 If you required elective CABG tomorrow and had typical three vessel disease and reasonable left ventricular function you would wish to have: whatever the surgeon decides, 1 internal mammary artery (IMA) + 2 veins; 2 IMA + 1 vein; 3 arterial grafts.



Question 4 Multiple arterial grafts are not commonly performed in the UK because: there is no proof of benefit; the mortality may be higher; the morbidity may be higher; the procedure may take too long; there may be a learning curve.

arterial grafts. Furthermore over half of surgeons (56%) thought that at least a quarter of their patients would benefit and 29% believed that over half their patients would benefit from multiple arterial grafts, implying that these should not only be reserved for a minority of selected cases. Of most interest is the CABG operation which surgeons would choose for themselves, with around half (49%) of consultant surgeons specifying multiple arterial grafts. However, of those not leaving the choice to their surgeon, 65% preferred multiple arterial grafts to the "standard" operation.

Why then are the numbers of multiple arterial grafts performed not higher?

The most commonly cited reasons for not performing multiple arterial grafts were the existence of a learning curve, a perception of increased morbidity, and the longer duration of operation.

The existence of a learning curve for more complex operations is an accepted surgical fact of life which can be minimised but not abolished. The current intense professional and public scrutiny of cardiac surgeons provides a hostile environment in which to face a learning curve. This is consistent with another survey of UK consultant cardiac surgeons where 90% said they believed that high risk cases were already being turned down as a consequence of intense public scrutiny (BE Keogh 2001, personal communication). A similar survey of North American cardiologists and cardiac surgeons following the introduction of public performance reports showed that the majority of respondents believed that more difficult cases were being turned down.⁵ Such an approach leads to those patients, who stand to benefit most individually, being denied surgery in favour of easier cases, whose benefit may only be apparent when large numbers of patients are examined. We believe this argument applies to the case for multiple arterial grafts.

A significant proportion of respondents also cited a perceived higher mortality and morbidity as factors (50% and 63% respectively) militating against the performance of multiple arterial grafts. Numerous studies have reported that multiple arterial grafts can be performed without an increase in mortality or morbidity,^{2,3} but most large series of multiple arterial grafts are produced by surgeons experienced in the technique. This suggests that this issue would be overcome if multiple arterial grafting were performed more frequently.

The length of the procedure was another factor commonly cited (59%) for not performing multiple arterial grafts.

Around half an hour of additional surgical time is necessary to harvest conduits before bypass, but considerations over the length of time reflect a preoccupation with resources which weighs against the best interests of the individual patient. Whether this reservation and the concern over a learning curve should be allowed to deny individual patients the procedure which their surgeon believes will benefit them (and would prefer for himself) needs to be addressed.

Like other situations in medicine where a consensus of evidence based practice is not established, consultants make clinical decisions based on their interpretation of how the existing evidence might apply to their individual patients. The aim of this survey was not to challenge this interpretation, nor to dispute the practice of consultants; but simply to establish what were the current interpretations of cardiac surgeons. Nevertheless, it is significant that there is a relative disparity between cardiac surgeons' opinions and their actual operative practice. The main reason for this remains open to speculation. However, with the observation that a learning curve was the most commonly identified barrier to multiple arterial grafts, the current environment of scrutiny of cardiac surgeons in the UK may be playing a role in clinical decision making.

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FROM BMJ JOURNALS

What is the best treatment for Kawasaki disease?



Please visit the Heart website (www.heartjnl.com) for link to this full article.

Despite being the focus of intensive research and the most common form of acquired heart disease in US and British children, the causes and optimal treatment for Kawasaki disease remain elusive. Herpes viruses might have a part to play, and there seems to be some seasonal variation, with the disease peaking in winter and spring. In Japan, it is more common among siblings, 8 to 9 per cent of whom under the age of 2 are affected.

Recent evidence suggests that high dose aspirin is more effective than low doses for reducing inflammation and the subsequent risk of coronary artery aneurysm and arterial thrombosis. But 30 mg/kg/day will minimise gastrointestinal and other side effects. There is no evidence that additional dipyridamole is any more effective.

Up to 40 per cent of children treated with aspirin alone will develop cardiac abnormalities, and 2g/kg of intravenous immunoglobulin infused over 10 hours reduces these risks by 9 per cent at 30 days. Best given early, it should not be ruled out after 10 days; some patients might benefit from a second dose. Steroids are more controversial, but should be considered when intravenous immunoglobulin is unsuitable.

Aneurysms will develop in up to 40 per cent of patients. Most regress within two years, but giant aneurysms of more than 8 mm carry a risk of death of almost 4 per cent. The latest thinking is that platelet glycoprotein IIb/IIIa receptor blockade treatment may be effective. But yearly lifelong monitoring of all children who have had Kawasaki disease is recommended.

▲ *Arch Dis Child* 2002;**86**:286-90.