Remote endarterectomy for long segment superficial femoral artery occlusive disease: a systematic review
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CRD summary
The authors concluded that both short- and long-term outcomes after remote superficial femoral artery endarterectomy appeared acceptable, but that a large number of secondary interventions were required to maintain patency. In view of the lack of controlled evidence, a limited search and failure to assess study validity, the conclusions should be regarded with a degree of caution.

Authors' objectives
To evaluate the use of remote superficial femoral artery endarterectomy (RSFAE) for treating long segment superficial femoral artery (SFA) occlusive disease.

Searching
PubMed/MEDLINE was searched for articles published between 1995 and February 2008. Search terms were reported. The reference lists of articles retrieved were handsearched. The search was restricted to studies in English.

Study selection
Studies of RSFAE for SFA occlusive disease were eligible for inclusion provided they included at least 10 participants and reported primary and/or secondary patency rates.

The mean or median age of participants in included studies ranged from 62 to 71 years; 50 per cent to 80 per cent were male and 35 per cent to 84 per cent were smokers (where reported). Rates of hypertension, diabetes mellitus, coronary artery disease and hyperlipidaemia varied widely across studies (where reported). The clinical threshold for surgery also varied widely, however, nearly all studies required participants to have multiple stenoses or lengthy occlusion of the RFA, with supragenicular reconstitution of the popliteal artery and a minimum of one patent crural vessel. All studies placed a stent and/or endograft to prevent restenosis and all conducted close postoperative surveillance, with three monthly examination, duplex scanning and ankle brachial pressure index (ABPI) measurement. A wide range of secondary interventions were conducted to maintain patency (for example, angioplasty, thrombectomy, thrombolysis and surgical revision). Outcomes reported in the review included patency rates (primary, assisted and secondary) at one, two and five years, technical success (not defined), surgical complications, duration of hospital stay and secondary intervention rate.

Studies were selected by two reviewers working independently.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Findings were reported as the proportion of participants in each study experiencing an event. Data were extracted by two reviewers working independently.

Methods of synthesis
Mean and median event rates and ranges were calculated by pooling the data from individual studies, weighting each study by the number of limbs treated. Results were presented for specific time points, provided there were at least two relevant studies.

Results of the review
Fourteen case series were included in the review (n=952 patients, 1,001 legs): five prospective (n=288 patients), five retrospective (n=473) and four of indeterminate design (n=191). Sample sizes ranged from 13 to 210 patients.
Patency rates (14 studies)
Weighted mean cumulative primary patency rates were 60 per cent (seven studies, 256 legs) at one year, 57 per cent (four studies, 167 legs) at two years and 35 per cent (two studies, 198 legs) at five years. Equivalent rates for assisted primary patency were 75 per cent (seven studies, 242 legs) at one year, 77 per cent (three studies, 153 legs) at two years and 50 per cent (two studies, 198 legs) at five years. Secondary patency rates were 88 per cent (six studies, 219 legs) at one year and 62 per cent (two studies, 39 legs) at two years.

Other outcomes
The mean technical success rate was 94 per cent (range 65 per cent to 100 per cent). Failure was most commonly associated with SFA perforation or calcification. The overall procedure-related complication rate was 14.7 per cent. Mean hospital stay ranged from 1.3 to 3.1 days (six studies). The mean/median rate of secondary interventions to maintain patency was 32.2 per cent/28.6 per cent (13 studies), mean/median rate of eventual need for secondary bypass was 14.4 per cent/11.9 per cent (10 studies) and mean/median rate of eventual need for amputation 7.1 per cent/5.9 per cent (11 studies).

Authors’ conclusions
Both short- and long-term outcomes after RSFAE appeared acceptable, but a large number of secondary interventions were required to maintain patency. Research to assess the durability of RSFAE was needed.

CRD commentary
The review objectives and inclusion criteria were clear. However, only one database was searched and the search was limited by language and (apparently) by publication status, which meant that some studies may have been missed and that the review was prone to language and publication biases. Steps were taken to minimise the risk of error and bias by having more than one reviewer independently undertake study selection and data extraction, but it did not appear that study validity was systematically assessed. The authors appropriately decided not to pool data statistically in view of the clinical and methodological heterogeneity between the studies. Their method for weighting studies by the number of limbs reported could not be evaluated as it was not described. In view of the lack of controlled evidence, the very small number of studies reporting long-term data, the limited search and failure to assess study validity, the authors’ conclusions should be regarded with a degree of caution.

Implications of the review for practice and research
Practice: The authors stated that heavy SFA calcification should probably be a contraindication for RSFAE. They noted that intensive postoperative surveillance was required after RSFAE, and that this should probably continue indefinitely.

Research: The authors stated that randomised controlled trials comparing RSFAE with conventional open bypass surgery were needed to assess the usefulness and durability of RSFAE.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.