Evidence-based review of the surgical management of hyperhidrosis  
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CRD summary
This review assessed whether surgical treatment of adults with excessive sweating reduces sweating and improves quality of life. It concluded that insufficient evidence was available to fully evaluate the place of surgery in the management of excessive sweating. Given the limitations in the review methods these conclusions may not be reliable.

Authors' objectives
To evaluate the effects of endoscopic thoracic sympathectomy (ETS) in patients with primary hyperhidrosis (excessive sweating).

Searching
The MEDLINE and Cochrane databases were searched for English language literature from 1990 to October 2007. Search terms were reported. The reference lists of relevant studies were also reviewed.

Study selection
Randomised controlled trials (RCTs) and observational studies of endoscopic thoracic sympathectomy (ETS) conducted in human adult subjects with primary hyperhidrosis were eligible for inclusion. However one systematic review and one systematic review protocol were also included. Both abstracts and full papers were included. Studies in patients with secondary hyperhidrosis and those with only symptoms of facial blushing were excluded, as were those where sympathectomy was conducted for other reasons. Most study participants were aged less than 30 years. Follow-up periods ranged from 3 months to 16 years and between 23% and 100% of patients were reported to be successfully followed-up.

Outcomes of interest were: procedural success, long-term recurrence of symptoms, patient satisfaction and perceived quality of life, and adverse events (including compensatory sweating, death and Horner's syndrome). Studies were excluded if only intermediate outcomes were reported. Reported outcomes were operative failure, long-term recurrence, Horner’s syndrome and compensatory sweating.

The authors did not state how papers were selected for the review or how many reviewers performed the selection.

Assessment of study quality
Trials were assessed using the Jadad scale. This included assessment of the randomisation process, the concealment of treatment allocation and accounting for patient withdrawals, drop-outs and crossovers. The authors did not state that they assessed the validity of included observational studies.

The authors did not state how validity assessment was performed.

Data extraction
The authors did not state how the data were extracted for the review or how many reviewers performed the data extraction.

Methods of synthesis
Studies were combined using a narrative synthesis. Studies were examined according to design. Differences between studies were highlighted in the results and discussion sections.

Results of the review
One hundred and forty-six studies were reported to be included: two systematic reviews (one in protocol version only); 133 observational studies and 11 RCTs. The total number of included patients was not reported. Not all of the reportedly included studies were actually reviewed.
Observational studies (133 studies; 27 reviewed, 26 with details tabulated)
Of the 26 studies for which details were tabulated (studying 5,659 patients): late recurrence of sweating ranged from 0% to 37.5%; the incidence of Horner's syndrome ranged from 0 to 2.5%; and adverse events, in terms of compensatory sweating, occurred in between 1.5% and 96.7% of patients. Variations in outcome definitions between studies make meaningful comparison difficult. A single retrospective study of 60 patients with severe hyperhidrosis compared outcomes in patients undergoing ETS with those managed non-surgically. The surgical treatment option was found to be more effective in control of sweating and improved quality of life.

RCTs (11 trials; 3 reviewed)
Three RCTs including 147 patients compared different levels of sympathetic chain interruption (i.e. different extents of surgery). All three found no significant differences in terms of recurrence of hyperhidrosis. One RCT found significantly less and significantly less severe compensatory sweating occurred in those undergoing isolated T4 ganglionic resection compared to both T3 and T4 resections.

Authors' conclusions
The available evidence does not allow the effect of surgery in people with primary hyperhidrosis to be fully assessed. Largely observational evidence indicates that ETS is safe, reproducible and effective, with high levels of patient satisfaction.

CRD commentary
This review had a clear objective with clearly stated and apparently relevant inclusion criteria; however, only a subgroup of studies meeting the review inclusion criteria was actually reviewed. Reasons for the later exclusion of eight of the 11 included RCTs were given but a large group of observational studies were omitted with no rationale provided. Furthermore, studies like systematic reviews, which did not meet the inclusion criteria, were also included. These discrepancies suggest that subjective decisions were taken in selecting studies for the review. The literature search was limited, covering only two databases, with no attempt to identify unpublished literature. The inclusion of only English language papers could have introduced language bias. The choice of a narrative synthesis method was appropriate and a thorough discussion of sources of heterogeneity was presented. Adequate study details were provided for the studies that were reviewed. The quality assessment scale used was appropriate for the RCTs but no quality assessment tool or quality issues relevant to observational studies were discussed. The authors’ conclusions are based on the evidence presented; however, given the limitations in the search and the apparent confusion over the inclusion criteria, the conclusions are not likely to reflect the available body of evidence regarding this intervention.

Implications of the review for practice and research
The authors did not state any implications for practice.

Research: The authors stated that a multicentre, adequately powered, RCT comparing surgical to medical management is unlikely to be carried out due to enthusiasm for surgical procedures. RCTs comparing surgical techniques should ensure procedures are standardised and outcome measures are validated for both disease symptoms and surgical complications. Studies must be sufficiently large and have adequate long-term follow-up periods.

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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.