Effectiveness and safety of endoscopic thoracic sympathectomy for excessive sweating and facial blushing: a systematic review
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CRD summary
This review concluded that there is no evidence from controlled studies of the effectiveness of endoscopic thoracic sympathectomy, and that the procedure is associated with severe immediate complications in some patients and persistent adverse effects for many. Overall, the conclusions appear reliable.

Authors' objectives
To evaluate the effectiveness and safety of endoscopic thoracic sympathectomy (ETS) in the treatment of excessive sweating and facial blushing.

Searching
The authors searched MEDLINE (1966 to July 2004) and the Cochrane Library (Issue 2, 2004) without language restrictions; the search terms were reported.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials and prospective observational studies with at least 100 patients were eligible for inclusion in the review.

Specific interventions included in the review
Studies of ETS, which involves transection or clamping of the upper thoracic chain of the sympathetic nerve trunk, were eligible for inclusion. Details of the intervention varied between the included studies, but most involved transection at the T2 to T3 or T2 to T4 level. All the interventions were carried out under a general anaesthetic.

Participants included in the review
Studies of patients with facial blushing or excessive sweating on the face, hands, trunk or feet were eligible for inclusion. Most studies were of patients with excessive sweating; only one included study recruited patients with facial blushing. The participants were typically young adults; the mean age (where reported) ranged from 21 to 34 years, although some studies included children and the overall age range was 5 to 72 years. The percentage of males ranged from 27 to 56%.

Outcomes assessed in the review
Studies were required to report at least one outcome measure related to sweating or blushing symptoms. Most included studies reported on compensatory excessive sweating and immediate adverse events.

How were decisions on the relevance of primary studies made?
Two reviewers together selected studies for the review.

Assessment of study quality
Two reviewers independently assessed validity based on the following ten criteria: selection of population described; inclusion and exclusion criteria described; prognostic factors described; study size; follow-up longer than 2 years; drop-outs less than 20%; description of drop-outs; outcome measures congruent with aims; data presentation congruent with aims; and adjustment for confounders in the analysis. The studies were given a score out of 10 based on the number of criteria met. The quality of the reporting was also assessed.

Data extraction
At least two reviewers independently extracted the data.
Methods of synthesis
How were the studies combined?
The studies were combined in a brief narrative.

How were differences between studies investigated?
Differences between the studies were presented in tables and some were briefly discussed in the text.

Results of the review
Fifteen prospective observational studies (n=5,767) were included.

The methodological quality and the reporting of clinically relevant characteristics were poor. The quality scores of the included studies ranged from 0 to 8; only three studies scored 6 or more.

The authors stated that blushing and excessive sweating decreased after ETS in all studies, but no further details were reported. Complications following ETS included pneumothorax and/or haemothorax and Horner's syndrome in some patients in almost all studies. Compensatory excessive sweating was observed in 50% or more of patients in 13 of the 15 studies, and was considered to cause significant disability in 3 to 15% of those who experienced it.

Authors' conclusions
The evidence for the effectiveness of ETS is weak. The intervention is associated with severe immediate complications in some patients and persistent adverse effects for many.

CRD commentary
The review addressed a clear question and had defined inclusion criteria for the participants, interventions and study designs. Only two databases were searched, so it is possible that relevant studies might have been missed. The review may be at risk of publication bias as no attempt was made to assess this. Measures were taken to avoid errors and bias in the quality assessment and data extraction processes by the use of two independent reviewers, but it is not clear whether the study selection was independent. Quality was assessed using relevant criteria for observational studies. Although the review set out to assess the effectiveness of ETS, no results relating to effectiveness were reported because of the lack of controlled studies. Other relevant study characteristics and results were reported in tables, and the authors highlighted the deficiencies in the reporting of clinically relevant patient characteristics. The authors' decision not to attempt a quantitative synthesis reflects the limitations of the evidence but the narrative synthesis presented was brief and limited. Overall, however, the authors' conclusions reflect the evidence presented and appear reliable.

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

Research: The authors stated that if ETS is considered safe enough for use, its effectiveness should be tested in prospective controlled trials with sufficient follow-up to evaluate the risk of recurrence of symptoms.

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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.