

Sympathectomy for facial blushing

Colin Fischbacher

Search date: February 2003

www.signpoststeer.org



What is the STEER service?

The STEER service is a rapid on-demand reviewing service, which:

- informs decisions by providing evidence-based answers to focused questions
- produces the reviews within a short period of time, usually 8-10 weeks
- is provided for policy makers by the Wessex Institute for Health Research and Development together with Bazian Ltd, an independent company that specialises in evidence-based reviews and training. Bazian Ltd has a policy of strict scientific integrity and does not accept contracts that threaten impartiality when assessing and reviewing research.

What is a STEER?

STEER stands for Succinct and Timely Evaluated Evidence Review. A STEER is:

- a short, pragmatic review of major sources of published literature to answer focused questions
- designed to further decisions by quickly surveying and reporting on a large number of sources of evidence
- descriptive in nature, rarely employing meta-analysis
- conducted by reviewers using validated search strategies, data extraction, and peer review

How is a STEER produced and quality-controlled?

A structured STEER question is developed through liaison with the commissioner and with experts in the field.

- A systematic search of the published literature is performed by an experienced information specialist, using validated search strategies (available on request for each review).
- An initial check of study abstracts is performed to exclude irrelevant studies. Identified papers are then obtained.

An initial appraisal of each paper is then performed by two experienced appraisers, using standard, validated critical appraisal techniques. Irrelevant or poor quality studies are excluded at this stage.

- Selected papers are sent to a reviewer to produce a draft STEER report. Reviewers are supported throughout the reviewing process by an experienced in-house team, advising on methods and providing guidance as needed.
- The draft report is independently and anonymously peer-reviewed by other members of the network of reviewers.
- The manuscript is then checked and edited by in-house editors (from Bazian Ltd), who are experienced in reviewing methods.
- The final proof is re-checked by the reviewer before dissemination.

Using STEER

In the interests of rapid and timely delivery, STEER does not routinely consider unpublished research, such as submissions from the pharmaceutical industry. Where possible, we cross-check STEER reports against existing systematic reviews (which have searched unpublished sources) to ensure reliability. However, when STEERs report that no systematic reviews were identified, it should be remembered that reliable research might be available in the unpublished literature.

STEER does not make recommendations about policy. STEER reports are simply intended as an impartial summary of the best available evidence from the published literature. By explicitly describing available evidence, STEER reports can reduce the time and cost of debating research findings. However, STEER reports are at their most useful for policy making when considered alongside other policy determinants, such as cost-effectiveness and consensus opinion.

STEERs may report that insufficient evidence was found for an intervention. In such circumstances, it should be noted that a lack of evidence does not equate with a lack of effectiveness. We feel it important to emphasise this distinction, particularly because many STEER questions relate to novel interventions, which currently lack an evidence base, but which may yet prove effective.

How can I request a STEER?

The STEER service originated to support the decisions of health service commissioners and policy makers the NHS.

STEER reports are available to NHS staff. Topics should be prioritised through discussion with your PCT, strategic health authority or commissioning group before a request is made.

Before requesting a STEER report please:

- Check the STEER website **www.signpoststeer.org**. The site features a system called 'SIGNPOST', which will help you to find any existing reviews on your topic. The site also provides an index and the full text of previous STEERs. You may find that your question has already been answered.
- Contact the Wessex Institute or Bazian Ltd to submit a request.

Contact details

STEER administrator

Bazian Ltd

Suites 1 and 2

138 Upper Street

London N1 1QP

tel: 020 7288 0544

fax: 020 7226 3341

email: info@bazian.com

website: www.signpoststeer.org

Sympathectomy for facial blushing

Author name and details

Dr Colin Fischbacher
Clinical Research Fellow
University of Edinburgh

Conflict of interest

None

Search date: February 2003

Users of this report should check for later evidence that may alter the STEER conclusions.

This STEER report should be cited as:

Fischbacher C. [Sympathectomy for facial blushing](#). In Bazian Ltd (Ed) STEER: Succinct and Timely Evaluated Evidence Reviews 2003; 3(4). Wessex Institute for Health Research & Development, University of Southampton. [WWW document] URL <http://www.signpoststeer.org/>

Series Editors: Bazian Ltd

STEER Editor: Lindsay Forbes

Assistant STEER Editor: Vivek Muthu

Information specialist: Liz Payne, Alison Price

Disclaimer

The information in this report is based on STEER search and appraisal methods as presented in this document. Great care has been taken to ensure accuracy and avoid bias in interpretation and presentation of available research. However, neither the Wessex Institute for Health Research and Development nor Bazian Ltd are responsible or liable for errors or omissions, for any consequences of applying any of the information presented herein and make no warranty, express or implied, with respect to the contents of this document. The Wessex Institute for Health Research and Development and Bazian Ltd are not responsible for policy or practice decisions made by STEER users. Any representation against such decisions should not be taken up with Bazian Ltd or the Wessex Institute for Health Research and Development.

STEER Reports Copyright © 2003 Wessex Institute for Health Research and Development and Bazian Ltd

Question

What are the effects of sympathectomy on blushing and social and psychological health?

Population:	People with severe (socially or psychologically disabling) facial blushing
Intervention:	Thoracic sympathectomy
Comparator:	No treatment, psychological treatment, medication or other surgical treatments
Outcomes:	Frequency and severity of blushing, psychological and social outcomes and quality of life, excluding patient satisfaction.

Summary

We found insufficient evidence about the benefits of sympathectomy for blushing, psychosocial health or quality of life.

We found one systematic review of the effects of endoscopic thoracic sympathectomy. It found four papers (describing three case series) but no controlled trials or cohort studies. It concluded that the evidence that cosmetic surgery improved psychosocial wellbeing was limited. We found no eligible studies published after the systematic review.

Background

Severe facial blushing in response to emotional stress is socially and psychologically disabling and often associated with excessive facial sweating.¹ The prevalence of severe blushing is not known.² Severe blushing may be part of a wider syndrome of social phobia including fear of common social situations, sweating and tremor.³

Treatment for blushing includes psychological therapies, drugs and surgery. Sympathectomy is used in the treatment of excessive facial, palmar and axillary sweating as well as facial blushing. It involves cutting the sympathetic ganglia and nerves in the upper thorax that supply the face and upper body. The more invasive open thoracic procedure has been replaced by endoscopic thoracic sympathectomy (ETS) which can be performed on an outpatient basis. Under general anaesthesia, a laparoscope is introduced through incisions in each axilla. The upper thoracic sympathetic ganglia are destroyed using electrocautery, transected⁴ or compressed with surgical clips.⁵ The most common side effect of sympathectomy is compensatory sweating in other parts of the body, sometimes severe enough to require further surgery.^{5,6}

Methods

Search date: **February 2003**. Primary sources: Medline 1966 to date; Embase 1980 to date; Cochrane Library Issue 1, 2003; Clinical Evidence Issue 8; ISI SCI; Centre for Reviews and Dissemination, University of York, UK (comprising Database of Abstracts of Reviews of Effectiveness, UK Health Technology Assessment Database, NHS economic evaluation database, UK).

We excluded case series with fewer than 20 cases with facial blushing, and studies that did not provide results separately for people with blushing.

Evidence found

We found one systematic review, search date 2001.⁷ It did not find any controlled trials, other clinical trials or cohort studies with comparison groups, but identified four case series.^{2-4,8}

In the first case series, 28 people with blushing or excessive sweating were interviewed about the results up to 60 months after open sympathectomy or ETS.⁸ The second case series used a questionnaire and a visual analogue scale to assess blushing, sweating and psychosocial symptoms a mean of 8 months after ETS in 244 people.² The third case series⁴ reported on the same people as the second² and did not provide any additional information, so we do not discuss it further. The fourth case series assessed symptoms using a questionnaire and a visual analogue scale before and 4 months after ETS in 51 people, 8 of whom had only unilateral procedures (7 as part of a pilot study).³ The study reported results separately for the remaining 43 who had bilateral procedures.

Table 1 summarises the included studies. We did not find any studies published since the systematic review that fulfilled our inclusion criteria. We excluded two subsequently published case series reporting results of surgery for blushing and facial sweating because they did not report results for patients with blushing separately.^{1,6} Table 2 provides details of excluded studies.

Quality of evidence found

The systematic review was clearly focused and described the search

strategy, though did not state whether the authors contacted experts for further references, sought unpublished studies or examined reference lists.⁷ It was restricted to articles published in English. The author did not assess the quality of the four reports identified.

Case series are intrinsically weak for assessing effectiveness of interventions, because, without a control group, they cannot exclude changes in symptoms occurring spontaneously or as a result of placebo effects.

Some additional methodological weaknesses were common to all three studies. The characteristics of the patients included were not clear, particularly in relation to the severity of symptoms and the extent of previous treatment. The methods of assessing outcome were not described in detail and the studies did not discuss their validity.

The first case series was small and did not describe symptoms before surgery.⁸ The length of follow up varied widely. The study reported outcomes only in terms of the presence or absence of improvement and did not provide details of the method of assessment.

The second case series included the largest number of people.^{2,4} Loss to follow up was low (10%). The study reported changes in a range of psychosocial outcomes as well as improvements in blushing. Although the study reported pre- and post-operative assessments of symptoms, it appears that these were both collected using one questionnaire administered post-operatively, increasing the risk of recall bias.

The third case series based evaluation of change on both pre- and post-operative assessments of blushing and anxiety.³ However, it was relatively small and the duration of follow up was limited. Although it provided detailed

qualitative information about the psychosocial characteristics of participants before surgery, it did not report psychosocial outcomes following surgery.

Study results

For all the case series, we report the results only for people with facial blushing.

All three case series reported substantial and statistically significant improvements in facial blushing following surgery. The first case series reported efficacy results only in 15 people who had sympathectomies; 14/15 no longer experienced facial blushing.⁸ The second case series reported reductions in the severity of blushing after surgery, from 8.7 to 2.2 on a visual analogue scale ($p < 0.0001$).^{2,4} The study reported improvements in some psychosocial outcomes. The third case series reported substantial improvements in visual analogue scale scores for blushing, palpitations and anxiety after surgery.³

The most common side effect reported was increased sweating in other parts of the body following surgery (compensatory sweating). The first case series reported compensatory sweating in 16/24 of participants, gustatory sweating (sweating in response to food) in 9/24 and phantom sweating in 7/24.⁸ The second case series reported compensatory sweating in 75% of participants and increases in the mean visual analogue scores for gustatory sweating ($p = 0.10$), trunk sweating ($p = 0.0001$) and groin sweating ($p = 0.0001$).^{2,4} The third case series reported compensatory sweating, but not the number of people affected.³

Other less common side effects included transient Horner's syndrome (2 cases), neuralgia (5 cases),

pneumothorax (1 case) and transient winged scapula (1 case) in the first case series⁸ and pneumothorax (2 cases), small pulmonary embolus (1 case) and decreased sense of smell (1 case) in the second case series.^{2,4}

The first case series reported that 14% of people had a “late relapse of sympathetic activity”, though this was not defined.⁸

Conclusions

We did not identify any controlled trials or cohort studies. The evidence about effectiveness, based on three case series, was therefore very limited. The main weakness of these studies was their lack of a comparison group and their resulting inability to exclude a placebo response to surgery. In addition, the methods of assessing outcome were poorly described and not validated, and the range of outcomes assessed was limited.

The studies provided very limited evidence that sympathectomy improves blushing. Side effects were common.

References

- 1 Reisfeld R, Nguyen R, Pnini A. Endoscopic thoracic sympathectomy for hyperhidrosis: experience with both cauterization and clamping methods. *Surg Laparosc Endosc Percutan Tech* 2002;12(4):255-67.
- 2 Drott C, Claes G, Olsson-Rex L, Dalman P, Fahlen T, Gothberg G. Successful treatment of facial blushing by endoscopic transthoracic sympathectomy. *Br J Dermatol* 1998;138(4):639-43.
- 3 Telaranta T. Treatment of social phobia by endoscopic thoracic sympathectomy. *Eur J Surg Suppl* 1998;580:27-32.
- 4 Rex LO, Drott C, Claes G, Gothberg G, Dalman P. The Boras experience of endoscopic thoracic sympathectomy for palmar, axillary, facial hyperhidrosis and facial blushing. *Eur J Surg Suppl* 1998; 580:23-6.
- 5 Lin CC, Telaranta T. Lin-Telaranta classification: the importance of different procedures for different indications in sympathetic surgery. *Ann Chir Gynaecol* 2001;90(3):161-6.
- 6 Reisfeld R, Nguyen R, Pnini A. Endoscopic thoracic sympathectomy for treatment of essential hyperhidrosis syndrome: experience with 650 patients. *Surg Laparosc Endosc Percutan Tech* 2000;10(1):5-10.
- 7 Centre for Clinical Effectiveness. Endoscopic thoracic sympathectomy for treating facial blushing. Melbourne: Southern Health/ Monash Institute of Public Health; 2001. Available from: <http://www.med.monash.edu.au/publichealth/cce>. Date accessed: 13 February 2003.
- 8 Yilmaz EN, Dur AH, Cuesta MA, Rauwerda JA. Endoscopic versus transaxillary thoracic sympathectomy for primary axillary and palmar hyperhidrosis and/or facial blushing: 5-year-experience. *Eur J Cardiothorac Surg* 1996;10(3):168-72.
- 9 Rajesh YS, Pratap CP, Woodyer AB. Thoracoscopic sympathectomy for palmar hyperhidrosis and Raynaud's phenomenon of the upper limb and excessive facial blushing: a five year

experience. Postgrad Med J
2002;78(925):682-4.

- 10 Lardinois D, Ris HB. Minimally invasive video-endoscopic sympathectomy by use of a transaxillary single port approach. Eur J Cardiothorac Surg 2002;21(1):67-70.
- 11 Swan MC, Paes T. Quality of life evaluation following endoscopic transthoracic sympathectomy for upper limb and facial hyperhydrosis. Ann Chir Gynaecol 2001;90(3):157-9.
- 12 Krasna MJ, Jiao X, Sonett J, Gamliel Z, King K. Thoracoscopic sympathectomy. Surg Laparosc Endosc Percutan Tech 2000;10(5):314-8.

Table 1 Details of included studies

First author	Study design	Number of participants	Patient characteristics	Results	Comments
Yilmaz ⁸	case series	20	people aged 15-48yrs at one centre in Holland	14/15 of those with did not have the symptom after surgery	no other outcomes reported follow up: up to 60 months
Drott ²	case series	244	people (median age 34) from one centre in Sweden	Reduction in severity of blushing on a 10 point VAS scale from 8.7 to 2.2 (p<0.0001).	these results are also reported in Rex ⁴ follow up: mean of 8 months
Telaranta ³	case series	51	people treated in a single surgical practice in Tampere, Finland (65% female) who had previously not responded to drug or psychological treatment	Reductions in VAS scores (scale 0-5) in 43 patients undergoing bilateral sympathectomy for blushing (3.7 before, 1.3 after) and anxiety (4.2 before, 2.1 after); both comparisons p<0.001 (Wilcoxon matched-pairs signed rank test)	follow up: about 4 months

Abbreviations VAS visual analogue scale

Table 2 Details of excluded studies

First author	Study design	Number of participants	Reason for exclusion
Lin ⁵	case series	248 (number with facial blushing not stated)	Reported side effects but not efficacy of procedure. No apparent overlap with the cases described in Telaranta ³
Reisfeld ⁶	case series	650 (65 with blushing or facial sweating)	Number with facial blushing not stated and results for facial blushing not reported separately; however since 62/65 of those with facial blushing or sweating experienced immediate relief of symptoms it is likely that a large proportion of those with blushing experienced improvement
Reisfeld ¹	case series	1312 (120 with facial blushing)	Separate results not reported for those with facial blushing
Rex ⁴	case series	244 with facial blushing	Same patients as those reported in Drott ²
Lardinois ¹⁰	case series	14 with facial blushing	Small number of cases
Rajesh ⁹	case series	3 with facial blushing	Small number of cases
Swan ¹¹	case series	2 with facial blushing	Small number of cases
Krasna ¹²	case series	1 with facial blushing	Small number of cases

STEER



BAZIAN