A review of the factors influencing nonrecurrence of venous leg ulcers

Authors' objectives
To assess the effectiveness of external prevention strategies for recurrence of venous ulcer, and to determine the extent of existing knowledge.

Searching
The following sources were searched from 1985 onwards: MEDLINE, Biological Abstracts, the Social Sciences Citation Index, Excerpta Medica, the Science Citation Index, CINAHL, RCN Nurse ROM, and the databases of the National Health Service (NHS) Centre for Reviews and Dissemination at York. The Current Awareness Services UnCover and the British Library's Inside Information were checked for recent publications, i.e. those published in the year 1995 up to August 4th. The keywords used were 'venous', 'leg', 'ulcer' and 'recur'.

Study selection
Study designs of evaluations included in the review
Papers relating to external treatment for the control and prevention of recurrent venous ulceration were included. The study designs included a randomised controlled trial (RCT), cohort studies, self-test, patient self-report, and papers reporting no research. The follow-up periods for studies on compression therapy ranged from 1 month to 5 years. Only publications relating to compression hosiery, published from May 1988 onwards, were included (NHS-prescription permitted hosiery regulations changed in April 1988).

Specific interventions included in the review
The following external preventative treatments were assessed: compression therapy using below and above knee hosiery (Scholl soft grip, and Medi Class 11 below knee stockings with mean ankle compression values ranging from 19.2 to 23 mmHg); bed rest and leg elevation; exercise and body weight management; and compliance with treatment.

Participants included in the review
The participants included the following groups of patients:

- leg ulcer patients treated in vein and vascular clinics for venous stasis;
- nonpregnant, nondiabetic attendees at varicose vein clinics with newly diagnosed venous ulcers treated by injection compression sclerotherapy, who consented to wearing graduated compression hosiery and to having venous ambulatory pressure taken over the next 5 years; and
- attendees at community leg ulcer clinics, who had newly healed ulcers and who were considered suitable for compression therapy.

Men and women aged from 19 to 90 years were included.

Outcomes assessed in the review
The recurrence rates for venous ulceration were assessed.

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The review commented upon validity features of the individual studies, such as study design. The author does not state
how the papers were assessed for validity, or how many of the reviewers performed the validity assessment.

**Data extraction**
The author does not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

The following data were extracted: type of study; criteria for patient selection; study population (recruited and available); exclusion criteria; patient information, such as age and gender; details of compression hosiery; follow-up period; frequency of follow-up; losses to follow-up; recurrence rates; number compliant; recurrence rate; mean life table time to recurrence (compliant and non-compliant); method of assessment of compliance; criteria for compliance; and the factors examined for association with increased risk of recurrence.

**Methods of synthesis**
How were the studies combined?
The studies were combined in a narrative review.

How were differences between studies investigated?
Differences between the studies were described.

**Results of the review**
Four papers reporting on compression therapy and the choice of hosiery were included: 1 RCT (N=188, with patients randomised to one of two brands of compression hosiery), 2 cohort studies (N=239; 1 prospective and 1 retrospective), and 1 self-test.

Of the papers that included no research, 3 reported on bed rest and elevation, and 6 reported on exercise and body weight. A further 4 papers, including 2 patient self-reports and 2 papers presenting no research, reported on compliance with treatment.

Few of the identified papers related to robust research studies. All 15 of the identified papers were included in the review.

Compression therapy and choice of hosiery (RCT and cohort studies): problems with the primary studies were identified. These included the following: differences in study design; method of selection; patient characteristics (one study gave no details of participants); different definitions of compliance; and a lack of reporting of recurrence rates by compliance. The compliance rates were reported to range from 79 to 84%. The ulcer recurrence rates were of a similar order of magnitude in all 3 studies (26 to 33%). Two studies found statistically-significant differences between compliant and non-compliant groups irrespective of ulcer history; the recurrence rates for compliant versus non-compliant were 16 and 100% (P<0.001), respectively for one trial, and 31 and 83% for the other. The incidence of recurrence peaked in the third and fourth year in the longer term follow-up study.

Bed rest and elevation: no supporting evidence was presented.

Exercise and body weight: no supporting evidence was presented.

Compliance with treatment bed rest and elevation: the papers focused on whether the patients agreed to wear compression hosiery. However, the included studies lacked clear definitions of compliance and clear measures of practice.

Factors influencing recurrence: no agreement existed between the studies.

**Cost information**
The present cost to the NHS for the treatment of leg ulcers was estimated as between £1,000 and £5,200 per patient per
year. The total cost was between £230 million and £400 million per year at 1990 to 1991 prices.

**Authors' conclusions**
There was some evidence that the use of compression hosiery is effective in reducing the incidence of venous leg ulcer recurrence, but other strategies cited for ulcer preventions were not supported by documented evidence. An evaluation of the effectiveness of currently available hosiery is overdue. Nurses need to be more informed on aspects of venous leg ulceration and prevention strategies.

**CRD commentary**
The aim and the inclusion criteria of the review were defined. Literature was sought from many sources. The relevant details of three studies on compression hosiery were tabulated clearly, and some aspects of the validity of these studies were discussed. A narrative review was appropriate. The conclusions of the review were, as the author stated, limited by the evidence available.

It was unclear whether language restrictions were applied when identifying the primary studies. No details were given of the methods used to select the studies for inclusion, or to extract the data. The definitions were not given for the diagnosis of venous ulcer, or for the outcome of ulcer recurrence.

The author’s conclusions were supported by the evidence presented.

**Implications of the review for practice and research**
Practice: The author considers that patients need clearer guidelines on what they could do and should be doing, and why they are doing it, to reduce the incidence of recurrent ulcers. Nurses need to be kept abreast of current information on leg ulceration and preventative techniques, both during and after their training. Nurses also need to understand why some patients do not comply and how they can help to promote compliance in these patients.

Research: The author considers that more research is needed to identify and evaluate the effectiveness of practices in preventing or delaying venous ulcer breakdown; to confirm that those whose ulcers have healed can benefit from continuous use of well-maintained compression hosiery; and to assess the effectiveness of currently available brands of compression hosiery.

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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.