Phototherapy in the treatment of skin diseases in Scotland
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CRD summary
The review compared the effectiveness of narrow-band ultraviolet B (UVB) with broadband UVB phototherapy for the treatment of psoriasis. The author found that narrow-band UVB was more effective. However, limitations in the review process and differences between the studies, in particular the limitations of the outcomes used in the primary studies, mean the author's conclusion may not be reliable.

Authors' objectives
To compare the effectiveness of narrow-band ultraviolet B (NB-UVB, TL-01) phototherapy with broad-band ultraviolet B (BB-UVB) phototherapy for the treatment of psoriasis.

Searching
MEDLINE (from 1966 to 2001) and EMBASE (from 1988 to 2001) were searched for studies in English or German; the search terms were given. Additional references were sought from the reference list of the British Photodermatology Group's review of NB-UVB (see Other Publications of Related Interest no.1) and through contact with dermatologists working within the University photobiology unit.

Study selection

Controlled studies (randomised and non-randomised) were eligible for inclusion. Studies that did not contain sufficient data to allow the calculation of a summary estimate were excluded.

Specific interventions included in the review
Studies comparing TL-01 NB-UVB with BB-UVB phototherapy were eligible for inclusion. Some patients in the included studies were also given adjuvant therapy, including salicylic acid, dithranol, coal tar and emollients, in addition to phototherapy. Studies comparing different adjuncts to NB-UVB phototherapy, or comparing different methods of administering NB-UVB, were excluded.

Participants included in the review
Specific inclusion criteria for the participants were not given in the report. The participants evaluated in the review were receiving treatment for psoriasis. The pattern of psoriasis varied and was defined as widespread, extensive, chronic plaque, guttate, or chronic plaque and guttate. Most of the studies included patients with skin phototypes I to III.

Outcomes assessed in the review
Specific inclusion criteria for the outcomes were not given in the report. Instead, the author used the main binary outcome reported in the study. The outcomes used in the review were different measures of observer-rated assessment of treatment effectiveness after a defined number of treatments, patient preference, and clearance of psoriasis (after how many treatments). Further details were given in the report.

How were decisions on the relevance of primary studies made?
One reviewer selected the articles for inclusion.

Assessment of study quality
The validity of the included studies was assessed in terms of allocation concealment, the method of randomisation, and blinding of the participant or observer. One reviewer assessed the validity of each included study.
Data extraction
One reviewer extracted the data for the review. Data on the number of patients achieving the main binary outcome were extracted from each individual study and used to calculate an odds ratio (OR) and 95% confidence interval (CI). Data were extracted using an intention-to-treat format. Small sample corrections were made for studies in which no patients achieved the outcome of interest: a value of 0.5 was assigned to each cell.

Methods of synthesis
How were the studies combined?
In the absence of significant statistical heterogeneity, the results from the individual studies were combined using a fixed-effect meta-analysis to obtain a pooled OR and 95% CI, and corresponding numbers-needed-to-treat (NNTs).

How were differences between studies investigated?
Statistical heterogeneity was assessed using the chi-squared test for each meta-analysis. Sensitivity analyses were also performed by repeating the analysis using a random-effects model, and by conducting separate analyses for studies that assessed the end point 'clearance' or 'minimal residual psoriasis' compared with 'not cleared', and for studies of high methodological quality (half-body paired studies, random assignment, and observer-blinded studies).

Results of the review
Thirteen controlled studies (455 participants) were included in the analysis. There were nine within-patient paired studies (half-body exposure to each compared intervention), two studies with unpaired controls and two with historical controls. Five were reported to be randomised controlled trials.

The results of the pooled analysis found NB-UVB (TL-01) to be significantly more effective than BB-UVB (OR 9.1, 95% CI: 4.3, 19.4). Assuming the patients expected event rate (the number of patients expected to clear if using BB-UVB) was 60% or 85%, the corresponding NNTs would be 5 and 11, respectively.

The results of all studies favoured TL-01 NB-UVB, but four were not statistically significant (see Other Publications of Related Interest no.2).

The sensitivity analyses found no differences when using a random-effects model, studies of high methodological quality, or studies using the end point of clearance.

Authors' conclusions
NB-UVB is more effective than BB-UVB for the treatment of psoriasis. The nature of the patients in the primary studies means that the results apply particularly to chronic plaque psoriasis in skin phototypes I to III.

CRD commentary
The review question was clear in terms of the intervention and study design only. The search was limited to two electronic databases and the reference list of a pertinent review, and was restricted by language; the possibility of publication and language bias cannot, therefore, be ruled out. The study selection, data abstraction and quality assessment processes were not performed in duplicate, thus the possibility of selection bias and reviewer error is high. The validity of the included studies was assessed systematically and was considered in a sensitivity analysis.

Adequate details of the individual studies were given, but these suggested clinical and methodological heterogeneity. The range of primary outcomes in the studies was a limitation of this review, and resulted in the use of a simplistic 'good response' versus 'relatively poor response' outcome. This, together with the diversity of the studies, suggests that the decision to statistically combine all the included studies might not have been appropriate. The author's conclusion may not be reliable given the apparent limitations in the review process and heterogeneity among the included studies.

Implications of the review for practice and research

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Practice: The author did not state any implications for practice.

Research: The author stated that further research is needed to define the role of NB-UVB (TL-01) for the treatment of psoriasis and other conditions.

**Bibliographic details**

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by CRD

**MeSH**
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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.