Efficacy of psoralen UV-A therapy vs. narrowband UV-B therapy in chronic plaque psoriasis: a systematic literature review


CRD summary
The authors concluded that oral 8-methoxypsoralen-UV-A and narrowband UV-B treatment appeared effective in treating chronic plaque psoriasis; oral 8-methoxypsoralen-UV-A provided more reliable clearance. The conclusions reflect the evidence. However, shortcomings in review processes, unreported quality assessment and no exploration of variability suggest the conclusions may be unreliable.

Authors' objectives
To systematically review response rates and remission duration of oral 8-methoxypsoralen-UV-A versus narrowband UV-B treatment for chronic plaque psoriasis. Predictive factors of treatment efficacy were also evaluated, but did not form the focus of this abstract.

Searching
The Cochrane Library, MEDLINE and EMBASE were searched for studies published between 1980 and December 2010. Search terms were reported. The search was restricted to studies published in English or French.

Study selection
Randomised controlled trials (RCTs) that compared oral 8-methoxypsoralen-UV-A with narrowband UV-B treatment in adult psoriasis patients (older than 19 years) were eligible. Further inclusion and exclusion criteria were described as "pre-defined" but were not specified by the authors.

It appeared that inclusion criteria were adjusted to include any controlled trial that used either of the two treatments in the control arm. Studies that compared different regimens of oral 8-methoxypsoralen-UV-A or narrowband UV-B treatment and reported relevant parameters were also included. Where reported, treatment frequency ranged from once a week to five times a week. Most included studies used "clearance" (complete resolution of plaques) to measure treatment efficacy. Minimal residual activity (less than 1% of the body surface area affected) and reduction of baseline Psoriasis Area and Severity Index (PASI) score were also used. A range of phototherapy protocols were investigated in the included studies. The majority of studies investigated narrowband UV-B treatment. Studies were published between 1981 and 2011. Patient details were not reported.

Two reviewers were involved in study selection. Disagreements were resolved through discussion between all members of a board of experts.

Assessment of study quality
Quality assessment was not reported.

Data extraction
Supplementary material stated that "relevant data" were extracted from included studies without providing further information on how many reviewers were involved. Data were used to calculate odds ratios with 95% confidence intervals.

Methods of synthesis
Studies were synthesised by means of random-effects meta-analysis. Pooled odds ratios (OR) and 95% confidence intervals (CI) were calculated. No further details were provided. Statistical heterogeneity was quantified using I².

Results of the review
Twenty-six RCTs (1,096 participants) were included in the review. There were three studies that directly compared the efficacy of oral 8-methoxypsoralen-UV-A with narrowband UV-B treatment. Eighteen trials related to the use of narrowband UV-B treatment, eight to oral 8-methoxypsoralen-UV-A. No information on study methodology or quality...
Three trials that compared oral-8-methoxypsoralen-UV-A and narrowband UV-B treatment reported successful clearance of psoriasis in most patients regardless of treatment. However, the clearance rate in patients treated with oral 8-methoxypsoralen-UV-A was statistically significantly higher than in those treated with narrowband UV-B treatment (OR 2.79, 95% CI 1.40 to 5.55; three trials; I²=0%). A statistically significantly higher number of patients who received oral 8-methoxypsoralen-UV-A were still cleared at six months compared to those who received narrowband UV-B treatment (OR 2.73, 95% CI 1.19 to 6.27; three trials; I²=50%). The I² level observed in this analysis suggested a moderate level of variation between studies.

Dosing strategy (minimal erythemal or phototoxic dose, skin type determined, or fixed dose), dose increment schedules, and treatment frequency did not appear to be significant predictors of efficacy of narrowband UV-B or oral 8-methoxypsoralen-UV-A treatment. Detailed results were reported in the paper.

**Authors' conclusions**


**CRD commentary**

The review question was clear. Limited selection criteria were reported. It appeared that post-hoc changes were made to eligibility criteria due to the paucity of evidence identified. Several relevant sources were searched. As searches were restricted to articles published in English and French, relevant papers published in other languages and unpublished research may have been missed. The potential for publication bias was not assessed. The use of independent and duplicate processes for study selection reduced the risk of reviewer error and bias in this domain. However, it was unclear if similar processes were in place for data extraction. The lack of detail on the data extraction process made it difficult to assess if appropriate data were extracted from studies and how these data were used. As no participant details were reported, the generalisability of the findings was limited.

Although not described in detail, the methods of synthesis appeared appropriate. The assessment of heterogeneity using I² was appropriate but observed heterogeneity was not explored. As study quality was not assessed, the risk of bias in the included studies was unknown. Unexplored heterogeneity and missing quality assessment preclude the assessment of reliability of the results. The authors also stated inconsistent reporting, small sample sizes and the age of the studies (many conducted in the 1980s and 1990s) as limitations of their review.

The authors' conclusions reflect the evidence presented. However, due to an unknown risk of publication bias, some shortcomings in the review process, unreported quality assessment, and lack of exploration of heterogeneity between studies, the conclusions may not be reliable.

**Implications of the review for practice and research**

**Practice:** The authors suggested that oral 8-methoxypsoralen-UV-A continued to be used in practice for carefully selected patients, as it appeared to clear psoriasis more reliably than narrowband UV-B treatment, with fewer sessions and for longer. However, the choice of therapy should be influenced by the respective cancer risks of the two treatments.

**Research:** The authors did not make recommendations for research.

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