The effect of bright light therapy on depression associated with premenstrual dysphoric disorder

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CRD summary
The review evaluated the evidence from randomised controlled trials on bright light therapy for the treatment of depression associated with premenstrual dysphoric disorder. The impact of bright light therapy for relief of premenstrual depressive symptoms is uncertain given the limitations of existing trials. The conclusions appear appropriate and reflect the limited available evidence.

Authors' objectives
To summarise the evidence from randomised controlled trials (RCTs) on bright light therapy for the treatment of premenstrual dysphoric disorder (PMDD).

Searching
MEDLINE, AMED, CINAHL, Digital Dissertations, EMBASE and the Cochrane CENTRAL Register were searched from inception to September 2004; the search terms were reported. In addition, the references of included studies were screened and researchers in the field were contacted.

Study selection
Study designs of evaluations included in the review
Placebo-controlled RCTs were eligible for inclusion in the review. All of the included studies were randomised crossover trials.

Specific interventions included in the review
Studies investigating the effect of bright light therapy on depressive symptoms were eligible for inclusion in the review. No further information was reported for the included studies.

Participants included in the review
Studies of participants with PMDD were eligible for inclusion. Not all included studies specified the American Psychiatric Association's DSM diagnostic criteria for establishing PMDD among participants.

Outcomes assessed in the review
The studies had to report on depression, using validated instruments, to be eligible for inclusion. The included studies used the Hamilton Depression Rating Scale or the Beck Depression Inventory. One study also reported adverse effects.

How were decisions on the relevance of primary studies made?
Two reviewers independently assessed the studies for eligibility; no disagreements occurred.

Assessment of study quality
Two reviewers independently assessed the method of randomisation, allocation concealment, blinding and handling of withdrawals. Any disagreements were resolved by discussion.

Data extraction
Two reviewers extracted the data using a standardised protocol and data extraction form. Any disagreements were resolved through discussion. Trial authors were contacted to clarify trial quality aspects. In addition to the standard data extracted, effect sizes were calculated for change in depressive symptoms.
Methods of synthesis
How were the studies combined?
The effect sizes of individual studies were combined in a random-effects model using Hedges’ adjusted g method. The crossover trials were treated as parallel-design trials.

How were differences between studies investigated?
Heterogeneity was assessed using the Q statistic and the I-squared statistic. Interaction effects for a number of trial aspects were tested.

Results of the review
Four crossover RCTs (n=55) were included.

All trials lacked adequate description of randomisation procedures. Allocation concealment took place in only one trial. One trial blinded the participants and research personnel, two trials blinded research personnel but not the participants, and one trial was unblinded.

The pooled effect size of bright light therapy on depression was -0.20 (95% confidence interval: -0.48, 0.07; based on 3 studies); there was no indication of statistical heterogeneity. A further very small and unblinded trial showed a larger effect.

One study mentioned adverse effects (increased agitation and eye strain) and reported one withdrawal.

Authors’ conclusions
The limitations of existing trials leave the impact of bright light therapy for relief of premenstrual depressive symptoms uncertain.

CRD commentary
The review specified a clear question and inclusion criteria. The search was targeted at identifying published and unpublished literature, thereby reducing the risk of bias. The reviewers took measures to reduce errors and bias throughout the review process. The included studies were not described in detail, which makes it harder for the reader to assess the results of the review. The reviewers assessed trial quality and the analysis took quality aspect into account. The analysis was designed to produce conservative results (i.e. in doubt rather underestimating than overestimating effects) by treating the crossover trials as parallel trials. The conclusions appear appropriate and reflect the limited evidence.

Implications of the review for practice and research
Practice: The authors did not state any concrete implications for practice, but noted that the effects of bright light therapy may be overestimated in the lay literature.

Research: The authors stated that larger trials are needed to define the role of bright light therapy in the treatment of depression associated with PMDD.

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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.