Early response to light therapy partially predicts long-term antidepressant effects in patients with seasonal affective disorder

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Objective: To determine if the antidepressant effect of 1 hour of light therapy is predictive of the response after 1 and 2 weeks of treatment in patients with seasonal affective disorder (SAD). Patients: Twelve patients with SAD. Setting: National Institutes of Health Clinical Center, Bethesda, Md. Interventions: Light therapy for 2 weeks. Outcome measures: Scores on the Seasonal Affective Disorder Version of the Hamilton Depression Rating Scale (SIGH-SAD) on 4 occasions (before and after 1 hour of light therapy and after 1 and 2 weeks of therapy) in the winter when the patients were depressed. Change on typical and atypical depressive scores at these time points were compared. Results: Improvement of atypical depressive symptoms after 1 hour of light therapy positively correlated with improvement after 2 weeks of therapy. Conclusion: In patients with SAD, the early response to light therapy may predict some aspects of long-term response to light therapy, but these results should be treated with caution until replicated.

Objectif : Déterminer si l’effet antidépresseur d’une heure de photothérapie est prédicteur de la réaction après 1 et 2 semaines de traitement chez les patients atteints de troubles affectifs saisonniers (TAS). Patients : Douze patients atteints de TAS. Contexte : Centre clinique des National Institutes of Health, Bethesda (Md). Interventions : Photothérapie pendant deux semaines. Mesures de résultats : Résultats de la version de l’échelle de dépression de Hamilton (SIGH-SAD) sur 4 occasions (avant et après une heure de photothérapie et après une et deux semaines de photothérapie) au cours de l’hiver lorsque les patients étaient déprimés. On a comparé les changements des résultats relatifs à la dépression typique et atypique à ces intervalles. Résultats : On a constaté l’existence d’un lien positif entre l’amélioration des symptômes de dépression atypique après une heure de photothérapie et l’amélioration après deux semaines de photothérapie. Conclusion : Chez les patients...
Introduction

Seasonal affective disorder (SAD) is a condition of regularly recurring fall-winter depressions that alternate with remissions in the spring and summer.\textsuperscript{1} Multiple lines of evidence suggest that the development of SAD is related to both environmental and genetic factors.\textsuperscript{1,2} Light therapy is a mainstay of treatments for winter depression.\textsuperscript{13,6} A number of studies have demonstrated that artificial bright-light therapy effectively treats the symptoms of depression in most but not all patients with SAD. Although previous studies have addressed symptomatic predictors of light therapy, to date, whether the early response to light therapy predicts long-term response has not been studied. That question was addressed in the present study.

Methods

Patients, recruited through local media from the Washington, DC, and Baltimore metropolitan area, were required to: (a) meet the criteria for SAD of Rosenthal et al;\textsuperscript{1} (b) score at least 14 points on the 21-item Hamilton Depression Rating Scale (HDRS)\textsuperscript{7} or score at least 12 points on the HDRS, with a total of 20 on the Structured Interview Guide for the HDRS-SAD Version (SIGH-SAD), a revised version that merges the HDRS with a supplementary 8-item scale for atypical symptoms;\textsuperscript{8} and (c) be physically healthy, as determined by physical examination and routine laboratory testing. All subjects were screened with the Structured Clinical Interview (SCID)\textsuperscript{9} and met Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria\textsuperscript{10} for major depressive disorder or bipolar II disorder. Patients with a history of other axis I conditions were excluded from the study. Written informed consent was obtained from all subjects.

The study was conducted from December through February. Mood was rated by administering the HDRS SIGH-SAD. Baseline ratings were obtained for each subject by an experienced clinician immediately before the first hour of light therapy (8200 lux) and at the end of this hour. SIGH-SAD ratings were obtained after patients underwent 1 and 2 weeks of light therapy (10 000 lux for 45 min twice a day). Raters of SIGH-SAD after 1 or 2 weeks of light therapy were blind to the scores obtained after 1 hour.

Spearman’s correlation analysis was used to compare the improvement in SIGH-SAD scores after 1 hour of light therapy and after 1 and 2 weeks of treatment. We correlated the percent change in typical and atypical scores over 1 hour with the percent change over 1 and 2 weeks.

This work was done as part of a larger positron emission tomography (PET) study. A light box was suspended over the subject, who was in the horizontal position, and 6 PET scans were done during the 1-h session.

Results

Twelve patients with SAD (4 men and 8 women, mean age 46.5 standard deviation [SD] 8.6 years) participated in the study.

There was a significant correlation between the effect...
of 1 hour of light therapy on the atypical depressive symptoms and the effect of 2 weeks of light therapy on the same symptoms \((r = 0.72, p < 0.007)\), suggesting a relation between the early and long-term response to light exposure in our patients with SAD (Table 1). We found no other significant correlations. There was no correlation between the responses of typical or atypical symptoms to 1 hour of light therapy and their responses to 1 week of light therapy, and no correlation between the effect of 1 hour of light therapy on the typical depressive symptoms and the effect of 2 weeks of light therapy.

Discussion

Our finding that, in patients with SAD, the early response of atypical depressive symptoms to light treatment predicts long-term response is of particular interest given that others have reported that atypical depressive symptoms may predict response to light treatment in patients with SAD. Nagayama et al.\(^{11}\) and Stinson and Thompson\(^{12}\) found a positive correlation between baseline scores on the atypical symptom scale and percent of improvement. Lam\(^{13}\) found that hypersomnia and increased eating, both atypical symptoms, are predictors of response to light treatment. Similarly, Oren et al.\(^{14}\) showed that hypersomnia and carbohydrate craving predict a favourable response to light therapy, and Terman et al.\(^{15}\) reported the ratio of atypical to typical scores to be predictive.

Our study has certain shortcomings. Our patient sample was small, and the fact that the trial period is 2 weeks also presents a limitation — early response may be a placebo response. Therefore, our suggestion that early response of atypical symptoms to light therapy predicts long-term response should be treated with caution until it is replicated.

If replicated, this observation may provide a simple test that will allow clinicians to predict which patients will respond best to light therapy. A rapid response, with its predictive implications, might also encourage patients to persevere with treatment. Moreover, our finding may provide further insight into the mechanisms of action of light therapy.

Competing interests: None declared.

References


