Case report

Bright light therapy for seasonal affective disorder in Israel (latitude 32.6°N): a single case placebo-controlled study

Moscovici L. Bright light therapy for seasonal affective disorder in Israel (latitude 32.6°N): a single case placebo-controlled study.

Introduction: We describe a patient diagnosed as having seasonal affective disorder (SAD, winter depression), an unlikely condition in Israel (latitude 32.6°N), a country with relatively minor daylight photoperiodic changes between seasons.

Method: Case report.

Results: A 46-year-old woman with a clinical picture of depression (Diagnostic and Statistical Manual of Mental Disorders diagnostic criteria for ‘major depression with seasonal pattern’) reacted positively to 3 weeks of daily bright light therapy of 10 000 lux/wide spectrum. She was asked to wear dark sunglasses during placebo sessions to accommodate an A-B-C single-case-design. The intervention resulted in an improvement of 74–80% in the Hamilton anxiety and depression scales (clinician-rated) and the Beck depression inventory, similar to results obtained in high latitude regions. The depression and anxiety levels returned close to baseline levels following 1 week of the placebo intervention.

Conclusion: Seasonal affective disorder is apparently not limited to certain latitudes. The effect of light therapy was short-lived after discontinuation of the treatment, with rapid relapse occurring in the placebo phase.

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Introduction

Seasonal affective disorder (SAD) was first introduced in the DSM-IV in 1994 as ‘Major Depressive or Bipolar Disorders with a seasonal pattern’ (1). SAD is characterized by recurrent episodes of winter depression with remissions or hypomanic periods in spring and summer (2). The clinical presentation of the disorder includes overeating with carbohydrate binges, weight gain, and hypersomnia and fatigue during the daytime (3). The diagnosis of seasonal pattern specifier in the DSM-IV requires that there be no seasonal social factor that could account for depression, such as seasonal unemployment. The underlying pathophysiologic mechanism of SAD is still unclear, but most researchers agree that both the decrease in bright light and reduced daylight time (photoperiod) during winter are important etiological factors, especially in the northern hemisphere countries of North Europe and North America. It is assumed that the decrease in daylight exposure affects circadian rhythms via the retinal-hypothalamic pathways and the suprachiasmatic nucleus, the endogenous body clock, and the melatonin secretion through the pineal gland, subsequently affecting serotonin metabolism in such a way that it causes the kind of mood alterations seen in SAD (4).

Light therapy has been an established treatment for this condition for more than two decades (5, 6) and, more recently, for non-seasonal depression as well (7). Only few studies (8, 9), however, have considered SAD’s clinical and biological presentation in characteristic sunny climates and latitudes as it would appear intuitively obvious that residents of sun-drenched countries like Israel should be spared. We describe an Israeli patient with SAD and her successful treatment in an A-B-C single-case-design.
Case report

The patient was a 46-year-old married woman who was given treatment at our psychiatric out-patient clinic. She reported that for the past 6 weeks, beginning from the middle of November, she had been suffering from depression, diminished interest and pleasure in her usual daily activities, binge eating of carbohydrates with rapid weight gain, hypersomnia, fatigue and sleepiness during daytime, lack of energy, and feelings of worthlessness with excessive and inappropriate guilt for malfunctioning as a wife and mother. She reported that the same symptoms had recurred for 7 years, always beginning in November and lasting until late spring whereupon she described herself as beginning to flourish, feel joyful, energetic, function well, and return to her normal weight. Her past history and psychiatric anamnesis did not reveal any seasonal social factor that could account for her depression. The patient was not aware of the light therapy benefits for her condition and she had never before been treated with light therapy. General laboratory tests were normal. She was admitted to our clinic with the diagnosis of SAD according to diagnostic criteria of DSM-IV for ‘major depression with seasonal pattern’.

Bright light therapy

Of the two main treatment options for SAD, selective serotonin reuptake inhibitors (SSRI) antidepressants and bright light therapy (BLT), the latter is considered the treatment of choice because of its high efficacy, quick effect, and few side effects (5). We administered BLT by means of a 10 000 lux bright light intensity at a distance of 14 in from eye to the lamp screen (SunRay-2, SunBox Company, Gaithersburg, MD, USA). The BLT sessions were conducted at our clinic every day from 08:00 to 08:30 hours, from Sunday to Thursday, excluding Friday and Saturday, for 3 weeks.

Study design

The patient gave her informed consent to undergo BLT, which was conducted in two stages: following baseline measurements (phase A), treatment was administered uninterruptedly for 2 weeks (phase B), followed by a placebo effect intervention (phase C) consisting of BLT for one additional week with the patient wearing dark sunglasses during treatment. Clinical measurements were conducted at baseline (day one, T1), after five sessions (day 5, T2), after 10 sessions (day 12, T3), and following five sessions of placebo (day 19, T4). Measurements consisted of the 14-item version (clinician-rated) of the Hamilton anxiety scale (10), the 21-item Hamilton depression clinician-rated scale (11), and the self-reported Beck depression inventory (12).

Results

Significant improvement (between 74% and 80%) in all three measures was observed during the first week of BLT, between T1 and T2. Only a slight insignificant change was observed during the second week of the therapy (T2 and T3). At the end of the third week, after a placebo procedure was conducted (T3 and T4), all three measures returned nearly to their baseline levels (see Figs 1–3).

Using the Hamilton anxiety scale, the decrease in anxiety levels between T1 and T2 consisted of approximately 75% from the T1 level. It remained so at T2 and returned to only 76% of the T1 level after five placebo sessions, thus demonstrating a quick relapse.

Similar results were found with regard to depression levels, with a reduction between T1 and T2 of about 80% in the Hamilton rating scale for depression, and 74% at the Beck depression self-report inventory. No significant change was observed between T2 and T3. Following the 5 weeks of placebo sessions, the depression level according to the Hamilton...
rating scale returned to approximately 84% of its baseline level and to 72% of its T1 Beck depression inventory level. These results demonstrated once again a fast relapse effect during the placebo stage.

Discussion

Although winter in the Middle East is not characterized by radical daylight changes, such as in countries where SAD was commonly described, the presented case suggests that SAD is not limited to certain latitudes, and that it reacts positively to BLT, in similarity with findings of previously reported studies of ‘winter depression’. The clinical characteristics of SAD at this latitude (latitude 32.6°N) were not found to be different from those described at higher latitudes. The therapeutic effect of light therapy was short-lasting after discontinuation of the treatment. The implication of this is that light therapy must be continued during all the winter months until late spring, or augmented with medication (13). Light therapy has its proven effect not only in SAD, but also in non-seasonal depression as well, thus expanding its use to all climates. More studies assessing the SAD in this region are needed.

Acknowledgement

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References


Invited comment

At first it sounds somewhat out of place: seasonal depression in Israel! Seasonal affective disorder (SAD) is a subclassification of major depression (1) that recurs in winter and resolves completely in spring. The depression is often associated with atypical symptoms such as carbohydrate craving, hypersomnia, daytime sleepiness, irritability and weight gain. Almost all research on this depression subtype has been carried out in the Northern hemisphere.

Lucian Moscovici, the author of this case report, is well aware of the novelty of this clinical picture: a 46-year-old woman living in ‘sun-drenched’ Israel with all signs of SAD and responding to 2 weeks of bright light therapy, even relapsing into depression when light therapy is discontinued.

The case report is, however, interesting for two reasons. It demonstrates the seasonality of depression in a climate with only slight seasonal changes in light exposure and thus focuses on the individual vulnerability to light changes in some patients with SAD. It demonstrates the rapid onset of the effect of light therapy already known from controlled studies, but even more interesting, also a rapid relapse into depression when light treatment is stopped (2). These are important characteristics of light treatment to be taken into account when used in clinical practice.

The case report thus illustrates the fact that the effect of light treatment is comparable in different