

Commentary

Commentary on “Blue-blocking glasses as additive treatment for mania: a randomized placebo-controlled trial”

Wirz-Justice A, Terman M. Commentary on “Blue-blocking glasses as additive treatment for mania: a randomized placebo-controlled trial”. *Bipolar Disord* 2016; 18: 383–384. © 2016 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd.

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Key words: blue-blockers – circadian rhythms – mania

Bipolar mania usually requires hospitalization and antipsychotic medication. One's initial response to *sunglasses* as a first-line treatment may well be, ‘*C'mon, don't be ridiculous, enough with the soft alternatives for such a serious condition.*’ However, the present study (1), a controlled trial of this non-invasive, inexpensive adjuvant treatment which is free of side effects—and almost absurdly simple to administer—is a splendid example of translational psychiatry, a neuroscience-based therapy.

Amber-tinted glasses that block blue-spectrum irradiance of the retina have been adopted as a strategy to reduce light input to the circadian timing system, while maintaining clear visibility. This application closely follows the discovery of a blue-sensitive photoreceptor pigment, melanopsin, in retinal ganglion cells that relay the daytime light signal to the brain (2). Such short-wavelength, visible irradiation, in the range of 400–530 nm, enhances late-evening alertness, interfering with smooth sleep onset. In the home, such stimulation arises from luminescent electronic devices, such as backlit computer screens, which emit substantial blue irradiation within the spectral mix that forms intense white illumination [e.g., (3)].

It is exciting to see the accrual of a set of complementary clinical studies on bipolar mania, closely derived from recent basic research in chronobiology. The initial work, in fact, used *darkness* as a treatment, exposing patients to 14-hour nights in a darkened bedroom (4–6). Both rapid cycling and

mania could be stopped within days by this non-pharmacological intervention, supporting the growing evidence that bipolar disorders are very closely linked to the biological clock. Given the difficulty of keeping a manic patient in a dark room, the next step was conceptual, initiating the *biological night* in the early evening by means of amber glasses (7). So far, pilot studies of the use of blue-blocking glasses in adolescents (3), shift workers (8) and permanent night shift workers (9) and single case studies in patients with bipolar disorder (10, 11) have been published.

This is the first randomized clinical trial in bipolar mania, demonstrating the specific action of reduced input of blue light in the evening, with remarkably high effect size and onset of improvement after only three days. The glasses were well accepted by the patients—even those with psychotic symptoms. The side effects of headache and lowered mood and energy occurred as often in healthy controls as in the patients. This study, conducted in a naturalistic hospital setting, with few exclusion criteria, is an important step toward generalized use of the method.

What is clinically relevant is the ability to quickly modify mood state. Depression induced by the blue-blocking glasses could be alleviated by wearing the glasses later in the evening, providing a reduced dose of darkness; hypomania following a night without wearing the glasses could be treated by wearing the glasses again. Bipolar patients

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appear to be hypersensitive to variations in ambient light and darkness—long a part of bipolar folklore. The new studies underscore the need for close monitoring of individual patients with careful titration to euthymia. Whether depressed or manic, the key lies in controlling the dosage of light and darkness.

An intriguing, corollary finding is the reduced need for pharmacological treatment in patients wearing blue-blockers compared with placebo (three of 12 versus eight of 11 with at least two antipsychotic drugs; six of 12 versus 11 of 11 with an anxiolytic, hypnotic or sedative drug). Further trials become a priority.

As mania responds to darkness, depression improves with light. A specialized bipolar disorder clinic in Italy bases its treatment strategy on maintenance drugs (such as lithium) combined with sleep deprivation and light therapy in the depressive phase (without any use of antidepressants), and darkness or blue-blocking glasses in the manic phase (12). This treatment ensemble defines the emergent field of chronotherapeutics (13).

Disclosures

The authors of this paper do not have any commercial associations that might pose a conflict of interest in connection with this manuscript.

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doi: 10.1111/bdi.12392