

Blue-Blocking Glasses as Add-on Treatment for Mania in Patient with Type I Bipolar Disorder: A Case Report

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ABSTRACT

Introduction: Bipolar disorder is a mood disorder that affects about 2.4% of the world's population, frequently manifests in late adolescence and young adulthood with an average age of onset of 25 year. Manic episodes are associated with a particularly high risk of injury and death from accidents, as well as social, economic, and professional impairment. Here, we report a case of a man with acute mania who used the blue-blocking glasses as adjunctive treatment of manic symptoms. Case report.

Case Report: a twenty-five-year-old man, single, college student, in his first hospitalization with psychomotor agitation, disinhibition, decreased need for sleep, hypersexualization, logorrhea, persecutory and grandiose delusions, and shopping compulsion for 1 month until the admission, meeting the diagnostic criteria for bipolar I disorder, manic episode, according to the Diagnostic and Statistical Manual of Mental Disorders 5th edition-DSM5. After 21 days of hospitalization, with persistence of symptoms, despite the use of anti-manic medications in therapeutic dosages, blue-blocking glasses were introduced for use between 6p.m. till bedtime. Clinically, a significant reduction in manic symptoms was observed in a few days of use, with adequate sleep, more organized speech, remission of psychotic symptoms and psychomotor agitation. Then, the patient went home after 25 days of hospitalization.

Discussion/Conclusion: The glasses were generally well perceived by the patient, and their use was found to be feasible even for severely manic patients with psychotic symptoms. Thus, it is a simple, safe, easy-to-implement complementary therapy option that is of great value to regulate sleep, improve manic symptoms and improve the patient's quality of life.

Abbreviations: BAD: Bipolar Affective Disorder; IpRGCs: Intrinsically Photo-Responsive Retinal Ganglion Cells; DSM: Diagnostic and Statistical Manual of Mental Disorders; ipRGCs: Intrinsically Photo-Responsive Retinal Ganglion Cells; SCN: Suprachiasmatic Nucleus

Introduction

Bipolar affective disorder (BAD) is a chronic mental disorder that comprises episodes of mania or hypomania associated with one or more episodes of major depression during the patient's lifetime. It is a disease with a prevalence of approximately 1% in the population [1], and, as it affects people from a young age and is associated with greater exposure to risks, aggressiveness, impulsivity, increased activity, reduced need for sleep, recklessness with finances, emotional lability, among other characteristics, causes serious harm not only to the patient and their family, but to society as a whole [2]. Manic epi-

sodes are associated with a particularly high risk of injury and death from accidents, as well as social, economic, and professional impairment [2]. Current treatment of mania consists mainly of the use of antipsychotics and mood stabilizers; however, even with the use of these medications, the episode can last for weeks until remission [3], which makes it necessary to search for alternative or complementary forms of treatment to resolve symptoms more quickly. There is some evidence that the onset and worsening of bipolar symptoms are closely linked to abnormal circadian rhythms. Recent research supports the common clinical experience that bipolar episodes are triggered by changes in light conditions [3,4]. In this context, circadian regulation

has been reported to efficiently relieve symptoms of mania in some cases using dark therapy. However, placing an awake manic patient in a dark room for a long time is a difficult task. Orange-tinted glasses (blue-blocking glasses), which prevent light with wavelengths shorter than 540nm (green light) from reaching the retina, block the input to intrinsically photo-responsive retinal ganglion cells (ipRGCs) and hence inhibit signaling to all the projections, including the central nervous system [5], creating a virtual darkness environment to the brain, preserving melatonin production, similar to the melatonin profile for subjects in darkness [2]. Here, we report a case of a man with acute mania who used the blue-blocking glasses as adjunctive treatment of manic symptoms.

Case Report

A twenty-five-year-old man, single, college student, in his first hospitalization with psychomotor agitation, disinhibition, decreased need for sleep, hyper sexualization, logorrhea, persecutory and grandiose delusions, and shopping compulsion for 1 month until the admission, meeting the diagnostic criteria for bipolar I disorder, manic episode, according to the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5). During the hospitalization, he used olanzapine 30mg/day, lithium 900mg/day, lorazepam 14mg/day, biperiden 4mg/day, without improvement of symptoms after 15 days of hospitalization. Paliperidone therapy was attempted due to doubts about adherence to medications, and two intramuscular applications were done, reaching 100mg, with partial improvement of symptoms. After 21 days of hospitalization, with persistence of symptoms, blue-blocking glasses were introduced for use between 6 pm till bedtime. Clinically, a significant reduction in manic symptoms was observed in a few days of use, with adequate sleep, more organized speech, remission of psychotic symptoms and psychomotor agitation. Then, the patient went home after 25 days of hospitalization.

Discussion

Currently, there is a need for a better understanding of the mechanisms that provoke and sustain mood symptoms in BAD. A manic episode can last several weeks on average, regardless of treatment, leading to the belief that current treatments do not reach the central target of the disease [5]. Some theories associate the origin and worsening of bipolar disorder symptoms with changes in the circadian cycle [4,5]. Therefore, therapies aimed at regularizing the circadian cycle may have a beneficial effect on these symptoms, speeding up the remission process. One of the most recent non-drug therapy options created with the aim of regularizing the circadian cycle consists of the use of glasses that block blue light [5,6]. This light frequency is captured by specific retinal cells (intrinsically photo-responsive retinal ganglion cells – ipRGCs) which, in turn, signal the presence of daylight in the environment based on the interpretation of this stimulus in the brain [6]. ipRGCs contain the photopigment melanopsin, with an ab-

sorption spectrum sensitive to blue light. Melatonin, in turn, the “dark hormone” is suppressed by light via projections from the suprachiasmatic nucleus (SCN - “the great clock”) and pineal gland [5]. Orange lens glasses, like the one used in the case described, prevent lights with waves smaller than 540nm (green light) from reaching the retina, blocking their entry into the ipRGCs and, thus, inhibiting signaling to all projections of these cells, including the NSQ [6]. The glasses, then, would work to artificially reproduce the nocturnal part of the cycle in patients exposed to daytime white light, enabling normal melatonin production during these periods [7] it should be and functioning as a way of adjusting the altered circadian cycle, thus minimizing the harmful effects on mood caused by anomalous exposure to light [8]. Even with controlled studies that suggest blue-blocking glasses as effective add-on non-pharmacological option for mania, it is still little explored in clinical settings and could be adopted more often in manic patients [5,9]. The glasses were generally well perceived by the patient, and their use was found to be feasible even for severely manic patients with psychotic symptoms [9-11]. Thus, it is a simple, safe, easy-to-implement complementary therapy option that is of great value to regulate sleep, improve manic symptoms and improve the patient’s quality of life.

Conclusion

In this report, a progressive, sustained, and substantial improvement in manic symptoms was observed after the addition of glasses to the pharmacological regimen already used, possibly contributing to a reduction in hospitalization time. This non-pharmacological measure, still little explored in clinical practice, can be adopted in cases of mania in hospitalized patients as an adjuvant to treatment. It therefore constitutes a simple, safe, and easy to implement complementary therapy option that is of great value in regulating sleep, improving manifold symptoms and the patient’s quality of life.

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