Suicidal Tendencies as a Complication of Light Therapy for Seasonal Affective Disorder: A Report of Three Cases

Nicole Praschak-Rieder, M.D., Alexander Neumeister, M.D., Barbara Hesselmann, M.D., Matthäus Willeit, M.D., Christian Barnas, M.D., and Siegfried Kasper, M.D.

Background: Suicidality in seasonal affective disorder (SAD) subjects treated with bright light therapy seems to be a rare phenomenon. We report on three SAD patients with predominant atypical symptoms who presented for treatment in our clinic for SAD. Two suffered from bipolar disorder, one from recurrent major depressive disorder.

Method: All subjects were drug-free and treated with bright light therapy as a monotherapy for the first time. Treatment response was assessed weekly by standardized rating instruments, using the Hamilton Rating Scale for Depression (HAM-D) and the HAM-D-SAD addendum for assessment of atypical symptoms.

Results: Within the first week after beginning bright light therapy, two subjects attempted suicide. The third patient developed suicidal thoughts that were so acute and overwhelming that we had to discontinue bright light therapy and start with psychopharmacologic treatment in an inpatient setting.

Conclusion: It is suggested that bright light–induced amelioration of drive and mood can be dissociated as can be the case in the "critical time" of antidepressant therapy. The authors believe the collection of prevalence data on suicide and SAD would be worthwhile.

(J Clin Psychiatry 1997;58:389–392)

Received June 12, 1996; accepted May 27, 1997. From the Department of General Psychiatry, University of Vienna, Austria.

Presented in part in abstract form at the annual meeting of the Society of Light Treatment and Biological Rhythms (SLTBR), June 9–11, 1995, Frankfurt, Germany.

The authors greatly appreciate the editorial work of Sylvia Trinkl, M.A.

Reprint requests to: Nicole Praschak-Rieder, M.D., Department of General Psychiatry, University of Vienna, Währinger Gürtel 18–20, 1090 Vienna, Austria.

Seasonal affective disorder (SAD)/winter type is defined by a regular temporal relationship between the onset of major depressive episodes in bipolar disorder or major depressive disorder and the beginning of the dark seasons.[1,2] Furthermore, the clinical syndrome is characterized by the optional presence of atypical symptoms like loss of energy, fatigue, hyperphagia with carbohydrate craving, weight gain, and hypersomnia. Bright light therapy has proved to be effective in the treatment of SAD subjects.[3]

Suicidality in patients suffering from SAD has never been reported in the literature. The aim of our paper is to focus attention on the possibility of suicidal tendencies as a complication of bright light therapy for SAD. Although seemingly rare, this complication is an apparent problem in a few patients. As such, clinicians may do well to look for this phenomenon.

METHOD

We present three case reports of drug-free SAD subjects of a total sample of 33 patients who participated in a controlled program investigating the antidepressant efficacy of evening bright light therapy. All patients gave written informed consent after the procedure was fully explained. Standardized bright light therapy (neon tubes: Trulite, Durotest Corp., North Bergen, N.J.; light box: Theralux, type ATL-6, SML, Aachen, Germany) was administered in the patient's home for 2 hours late in the afternoon (5–7 p.m.). Three thousand lux was administered at eye level at a 60-cm distance from the light source. Therapy progress was documented by weekly completion of the Hamilton Rating Scale for Depression (HAM-D; 21-item version)[4] and the 7-item HAM-D-Supplement for atypical symptoms.[5] The patients' clinical and demographic characteristics are presented in Table 1.

CASE REPORTS

Case 1

Ms. A, a 35-year-old woman, had been suffering from SAD with atypical features since 12 years of age. Previ-

Table 1. Clinical and Demographic Characteristics*

Characteristic	Total Sample (N = 33)	Not Suicidal Under BLT (N = 30)	Suicidal Attempt/ Severe Suicidality (N = 3)
Age, y (mean ± SD)	38.5 ± 12.3	39.5 ± 12.4	28.3 ± 6.5
Gender (female/male)	26/7	24/6	2/1
Diagnosis according to DSM-IV (N)			
Major depressive disorder	13	12	1
Bipolar II disorder	20	18	2
Subtype			
With melancholic features	7	6	1
With atypical symptoms	22	21	1
HAM-D (mean ± SD)	17.6 ± 3.9	17.5 ± 3.8	19.3 ± 5.7
Item 3, suicide (mean ± SD)	0.4 ± 0.7	0.27 ± 0.5	1.7 ± 0.5
HAM-D-Supplement (mean ± SD)	13.3 ± 3.8	13.4 ± 3.9	12.3 ± 3.2
History of suicidality (yes/no)	4/29	2/28	2/1

*Abbreviations: BLT = bright light therapy, HAM-D = Hamilton Rating Scale for Depression.

ous treatments for her condition included regimens of fluoxetine, paroxetine, and thioridazine. At the age of 13, she additionally developed bulimia nervosa by DSM-IV definition characterized by a marked increase in binge eating in fall and winter and partial remission of the bulimic symptoms in summer. Twenty years later, after long-term psychotherapy, the bulimic disorder fully remitted. Since then, she suffered from a somatoform abdominal pain syndrome that deteriorated in the dark season. In several of the depressive episodes, suicidal thoughts without any attempt or even concrete plan were present. In the fifth week of the current depressive episode, bright light therapy was started. On that day, the 21-item HAM-D score was 13 with a Supplement score of 11. The score on the HAM-D item for suicide (Item 3) was 1. During the whole episode, Ms. A had been drug-free. After 4 days of bright light therapy, Ms. A reported that her lack of drive and loss of energy had ameliorated, but abdominal pain symptoms and depressive mood remained unchanged. The next day she attempted to commit suicide by ingestion of 4 g of thioridazine and 560 mg of paroxetine and was admitted to a psychiatric ward the same day. On a regimen of clomipramine up to 125 mg p.o. q.d., the depressive as well as the abdominal pain symptoms improved, and she was discharged from the hospital.

Case 2

Ms. B, a 22-year-old woman, had suffered from bipolar II disorder since the age of 18. Although experiencing depressive episodes with the predominance of atypical features during the dark seasons, she had never searched for professional help before. After she contacted our SAD clinic, bright light therapy was started in the seventh week of the current depressive episode. The HAM-D score was 21, the HAM-D suicide item was 2, and the Supplement score was 10. Apart from depressive mood, the predominant symptoms were lack of activity and increased duration of sleep by at least 4 hours. After 7 days of bright light therapy, the HAM-D score was 11, the Supplement score was 2, and the HAM-D suicide item dropped to 0.

After 12 days, Ms. B ceased bright light therapy. Within the next 3 days, she experienced a relapse of depression, and the HAM-D suicide item was elevated to 2 again. On Day 4 after reintroduction of bright light therapy, she attempted to commit suicide by ingesting 500 mg of amitriptyline. The next morning she was found in a somnolent state and was admitted to an intensive care unit where a peritoneal lavage was performed. Two days later, she was transferred to a normal psychiatric ward. Ms. B was then successfully treated with bright light therapy and was discharged from the hospital.

Case 3

Mr. C, a 28-year-old man, had suffered from a bipolar II disorder with seasonal pattern since the age of 24. He has had depressive episodes every year, all of them with onset in October and remission in May. During the four previous depressive episodes, he was treated with fluoxetine and maprotiline. At the time of referral to our clinic, Mr. C was experiencing another depressive episode of 10 weeks' duration, during which he remained drug-naive. The day bright light therapy started, he had a HAM-D score of 28 and a Supplement score of 14. At that time, transient suicidal thoughts were present. The HAM-D Item 3 (suicide) score was 2. After 6 days of bright light therapy, the HAM-D score went down to 11 and the Supplement to 6. His loss of energy and lack of drive had ameliorated, but depressive mood and suicidality remained unchanged. On Day 14 of bright light therapy, Mr. C developed a severe and overwhelming suicidal ideation, which could not be explained by external factors. Therefore he was hospitalized and treated with amitriptyline 300 mg p.o. q.d. the same day. This regimen led to a complete remission of the depressive syndrome within the next 4 weeks.

DISCUSSION

Focusing on biological aspects of suicidal risk, the most consistent finding has been an association between low cerebrospinal fluid (CSF) 5-hydroxyindoleacetic acid (5-HIAA) levels, a direct metabolite of serotonin (5-HT), and suicidal behavior.[6,7] Low CSF 5-HIAA also seems to be a predictor for short-range suicide risk after attempted suicide in mood disorder psychiatric inpatients.[6,8] Furthermore, the 5-HT hypothesis of suicide has received substantial support from postmortem studies of

brains of suicide victims. Lowered levels of brain 5-HT and 5-HIAA were found predominantly in the brain stem, independent of psychiatric diagnosis.[9,10]

A dysregulation of 5-HT neurotransmission also seems to be involved in the pathobiology of SAD[11] and might be influenced by bright light therapy.[12,13] Therefore one might expect suicide attempts to be more frequent in winter depressive episodes, which makes it all the more surprising that suicidal behavior in SAD patients has never been reported before. The question arises as to what factors or circumstances may have promoted or facilitated suicide attempts in these three individuals. Because we recruit our patients by self-presentation or referrals mostly from general practitioners, we presume they are more severely ill than subjects recruited by advertisements. Regarding the demographic and clinical characteristics of all SAD subjects taking part in our study, we found that two of the three patients who became suicidal under bright light therapy had a history of suicidality (see Table 1). Another finding was a striking difference in the HAM-D Item 3 (suicide) scores between the three suicidal patients and the other 30 SAD subjects who did not become suicidal: Ms. B and Mr. C scored 2 and Ms. A scored 1 the day bright light therapy was started. All of the other subjects had scores of less than 2 in the suicide item at the time the HAM-D was given, i.e., immediately before starting bright light therapy. In all other characteristics, our three patients were comparable to others who evidenced no suicidal tendencies under bright light therapy. Questioning the role of bright light therapy, it seems remarkable that all three SAD subjects developed suicidal tendencies in the early treatment phase (Days 4, 5, and 14) of bright light therapy, between November and January. A well-documented complication of therapy regimens with other antidepressants is the possible dissociation of mood and drive. As patients become activated while still dysphoric, suicide attempts are likely to occur during this critical period. In this connection it may be relevant to consider that the springtime, when environmental light is increasing, is the season of greatest prevalence for suicide,[14] rather than winter, when light levels are at their lowest.

In our three case reports, it is also important to shed light on diagnosis, comorbidity, life events, and current social stressors. In Patient 1, it has to be taken into consideration that she had been suffering from bulimia nervosa for many years and that at the time of referral she had a comorbid somatoform abdominal pain syndrome that deteriorated in the dark season. Not only the comorbidity but also the fact that she is a chronic pain patient may have facilitated a suicide attempt under an obviously bright light–induced amelioration of drive. In addition, Ms. A was conscious of the functional cause of her abdominal complaints and tended to interpret them as an expression of a "miscarried conduct of life." On the other hand, she had not had suicidal thoughts or severe alterations of mood before bright light therapy was started. In addition, no suicidal behavior was reported during previous depressive episodes. Patient 2, diagnosed as bipolar II, obviously developed a depressive-dysphoric mixed state with increased drive after having ceased bright light therapy. This condition led to arguments with her boyfriend, which may have provoked the suicide attempt.

Some studies suggest that bipolar disorder, particularly in a mixed state, conveys significant risk for completed suicide.[15] Opposite of Patient 1, Patient 3 had been markedly depressed and had had transient suicidal thoughts before the beginning of bright light therapy. Under bright light–induced partial remission of his symptoms, he experienced a severe relapse that could not be explained by external factors. Therefore, we decided to treat this patient further with regimens of both antidepressants and lithium.

In conclusion, suicidal features in SAD patients who are treated with bright light therapy seem to be seldom, but not negligible. As a consequence, it would be interesting to collect lifetime prevalence data on this issue. The fact that bright light therapy may be associated with suicidality is another evidence, besides the recent case reports of bright light–induced mania,[16,17] that bright light therapy should be applied only by qualified health care professionals experienced in this form of highly efficient biological therapy.[18]

Drug names: amitriptyline (Elavil and others), clomipramine (Anafranil), fluoxetine (Prozac), maprotiline (Ludiomil), paroxetine (Paxil), thioridazine (Mellaril and others).

REFERENCES

1. Rosenthal NE, Sack DA, Gillin JC, et al. Seasonal affective disorder: a description of the syndrome and preliminary findings with light therapy. Arch Gen Psychiatry 1984;41:72–80
2. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association; 1994
3. Society of Light Treatment and Biological Rhythms. Consensus statement on the efficacy of light treatment for SAD. Society of Light Treatment and Biological Rhythms Bulletin 1990;3:5–9
4. Hamilton M. Development of a rating scale for primary depressive illness. Br J Soc Clin Psychol 1967;6:278–296
5. Rosenthal NE, Genhardt M, Sack DA, et al. Seasonal affective disorder: relevance for treatment and research of bulimia. In: Hudson JI, Pope HG, eds. Psychobiology of Bulimia. Washington, DC: American Psychiatric Press Association; 1987:226–228
6. Asberg M, Thorén P, Träksman L, et al. Serotonin depression: a biochemical subgroup within the affective disorders? Science 1976;191:478–480
7. van Praag HM. Depression, suicide and the metabolism of serotonin in the brain. Lancet 1983;2:977–978
8. Nordstrom P, Samuelsson M, Asberg M, et al. CSF 5-HIAA predicts suicide risk after attempted suicide. Suicide Life Threat Behav 1994;24:1–9
9. Mann JJ, Arango V, Marzuk PM. Evidence for the 5-HT hypothesis of suicide: a review of post-mortem studies. Br J Psychiatry 1989;155(suppl 8): 7–14
10. Mann JJ, Underwood MD, Arango V. Postmortem studies of suicide victims. In: Watson SJ, ed. Biology of Schizophrenia and Affective Disease. Washington, DC: American Psychiatric Press; 1996:197–221
11. Kasper S, Neumeister A, Rieder N, et al. Serotonergic mechanisms in the pathophysiology and treatment of seasonal affective disorder. In: Holick MF, ed. Biologic Effects of Light 1995. Berlin, Germany: Walter de

Gruyter & Co; 1996:325–331
12. Lam RW, Zis AP, Grewal A, et al. Effects of acute tryptophan depletion in patients with seasonal affective disorder in remission with light therapy. Arch Gen Psychiatry 1996;53:41–44
13. Neumeister A, Praschak-Rieder N, Hesselmann B, et al. Effects of tryptophan depletion on drug-free patients with seasonal affective disorder during a stable response to bright light therapy. Arch Gen Psychiatry 1997; 54:133–138
14. Barraclough BM, Bunch J, Nelson B, et al. A hundred cases of suicide: clinical aspects. Br J Psychiatry 1974;125:355–373
15. Brent D, Perper J, Goldstein CE. Risk factors for adolescent suicide: a comparison of adolescent suicide victims with suicidal inpatients. Arch Gen Psychiatry 1988;45:581–588
16. Kripke DF, Risch SC, Janowsky D. Bright white light alleviates depression. Psychiatry Res 1983;10:105–112
17. Fleischhacker WW, Kasper S. Timing of phototherapy and the occurrence of mania. Biol Psychiatry 1991;29:1156–1157
18. Kasper S, Rogers SLB, Yancey A, et al. Phototherapy in individuals with and without subsyndromal seasonal affective disorder. Arch Gen Psychiatry 1989;46:837–844