

# Paranoid delusions and hallucinations and bright light therapy in Alzheimer's disease

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## SUMMARY

**Introduction** Bright light therapy (BLT) is becoming increasingly popular as an adjunct in the treatment of non-SAD depression and circadian rhythm disturbances in demented patients. Although the rate of side-effects is low, special attention should be paid when treating new groups of patients. We present the case of an 80-year-old woman suffering from dementia of Alzheimer's type (DAT).

**Method** Bright light (2.500 lux) was administered two hours daily between 10 and 12 a.m. for 14 days. Changes in delusion or agitation were recorded using the confusion rating scale (CRS).

**Results** Out of five patients, three already had delusional symptoms which slightly improved during the course of BLT, one patient never showed delusions before or during BLT, and one patient, which we present here, showed an increase in agitation and developed delusional symptoms. After eight days of treatment, the patient developed conjunctival irritation with marked red eyes and complained about blurred vision. After 12 days of treatment, the patient was disorientated in time and place and after 14 days the patient started to hallucinate and BLT had to be discontinued. The paranoid delusions and hallucinations stopped one day after treatment discontinuation.

**Conclusion** Looking at all the presented evidence, BLT seems to be a useful treatment supplement in DAT patients, when suffering from delusions or agitation. On the other hand, caution should be used when using BLT in demented patients if agitation develops or increases during BLT. Copyright © 2002 John Wiley & Sons, Ltd.

KEY WORDS — bright light therapy; Alzheimer's disease; dementia; delusion; hallucination; agitation

## INTRODUCTION

Bright light therapy (BLT) is becoming increasingly popular as an adjunct in the treatment of non-SAD depression and circadian rhythm disturbances in demented patients. The most common side-effects of BLT include agitation, irritability, anxiety, blurred vision and headaches (Labbate *et al.*, 1994). Abegg and Wettstein (1993) found that BLT worsened depressive symptoms and well-being in 16 healthy elderly women patients. On the other hand, amelioration of behavioural and sleep disturbances in patients with Alzheimer's-type dementia (DAT) has been described (Lyketsos *et al.*, 1999). The aim of our study was to investigate the influence of BLT on

delusional states or agitation in patients suffering from DAT.

## METHOD

The subjects consisted of five patients suffering from DAT (mean age = 81.8, SD = 6.3). Bright light (2.500 lux) was administered two hours daily between 10 and 12 a.m. for 14 days. Changes in delusion or agitation were recorded using the confusion rating scale (CRS) (Williams *et al.*, 1979).

## RESULTS

Out of those five patients, three already had delusional symptoms which slightly improved during the course of BLT, one patient never showed delusions before or during BLT, and one patient, which we present here, showed an increase in agitation and developed delusional symptoms.

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Table 1. Demographics and occurrence of delusions

Patient	Age	Sex	Delusions prior to BLT	Delusions during BLT	Delusions change in CRS subscore	Baseline IDSR
1	89	f	N	N	0	7
2	79	m	Y	Y	-1	0
3	88	f	Y	Y	-1	14
4	75	f	Y	Y	-1	5
5	78	f	N	Y	1	18
Mean:	81.8		2 N	1 N	-0.4	8.8
SD	6.3		3 Y	4 Y	0.9	7.2

BLT: bright light therapy; CRS: confusion rating scale; IDSR: intracategorical delayed selective reminding scale (Fischer *et al.*, 1990); SD: standard deviation; Y: yes; N: no; f: female; m: male.

## CASE REPORT

We present the case of an 80-year-old woman suffering from DAT with concomitant depression and disordered sleep-wake cycle (the patient had no previous psychiatric history and had never suffered from delusions). The patient scored 22 in the Mini-Mental State Examination (MMSE), was mildly depressed (HDRS of 14) and could be described as an inhibited and distrustful personality. The patient was initially very interested in taking part in the investigation and carefully followed all instructions. Psychopharmacological treatment (Diazepam: 5 mg/d, Prothipendyl: 80 mg/d) was kept constant during the course of BLT. After eight days of treatment, the patient developed conjunctival irritation with marked red eyes and complained about blurred vision. The patient showed some disappointment and became irritated, but still took part in the investigation. After 12 days of treatment, the patient was disorientated in time and place. After 14 days of treatment the patient started to see non-existent wires on the walls and felt exposure to radiation. The patient refused to enter the room where treatment took place and could not be reassured that the procedures were harmless and safe. Paranoid delusions, agitation and visual hallucinations developed and treatment was discontinued. Although the paranoid delusions and hallucinations stopped one day after treatment discontinuation, agitation still remained for four days and the patient still refused to enter the treatment room where BLT originally took place.

## DISCUSSION

Delusional states may also occur spontaneously in the course of DAT. Looking at the presented evidence with increasing delirious symptomatology and improvement after omission of BLT, we suggest that BLT had a major impact on the course of these

psychotic symptoms. Since the psychopathological state of the patient worsened over the course of BLT and remitted shortly after discontinuation, a causal relation between the occurrence of hallucinations and BLT seems probable.

On the grounds of a short term memory loss and/or disorientation paranoid interpretation, delusions and finally hallucinations may have occurred. Concerning the cause of the occurrence of the delusions in our particular patient with mild dementia one reason could be the presence of a cataract in this patient. Blurred vision during BLT due to a cataract could possibly favour misjudgement and illusions independent from mild dementia.

## CONCLUSION

Looking at all the presented evidence BLT seems to be a useful treatment supplement in DAT patients, when suffering from delusions or agitation. On the other hand, caution should still be used when using BLT in demented patients when agitation develops or increases during BLT.

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