Dementia is characterized by progressive function deficits including concentration, attention and social behaviour. These functions are often associated with affective disorders, insomnia and disturbed behaviour. Disturbed behaviour includes physically nonaggressive behaviours like pacing and motor restlessness, which often appears at twilight: a phenomenon called ‘sundowning’. Bliwise (1993) suggested a possible physiological explanation for sundowning as a dysregulation of the suprachiasmatic nucleus resulting in a disturbance of the circadian rhythm and sleep-wake cycle.

The sleep-wake cycle is mediated by the hormone melatonin. Being produced in the pineal, melatonin gives a signal as Zeitgeber in proportion to the brightness of the environmental light. Fluctuations in concentrations melatonin change in aging. The older people grow, the more these fluctuations will diminish, which can change the sleep-wake cycle and the need for sleep (Haimov and Lavie, 1995). Treating Alzheimer patients with bright light resulted in improved sleep quality, less sundowning and an increased circadian rest-activity amplitude (Satlin et al., 1992). The aim of our study was to evaluate a possible additional effect of melatonin on motor restlessness and sundowning in demented patients treated with bright light.

Eleven patients with senile dementia (DSM-IV) and manifest disturbed behaviour (CGI-score ≥ 3) were recruited from a psychogeriatric mediumstay ward. Excluded were patients with other axis-I diagnoses, severe somatic illnesses or who used β-blockers or lithium. Measurements occurred by the tenth subscale of the Clinical Global Impression (GCI; (Guy, 1979), assessing motor restlessness, the Social Dysfunction and Aggression Scale (SDAS; ERAG, 1992), measuring extrovert aggression and the GIP, assessing social, psychomotor and emotional behaviour (Verstraten et al., 1988; De Jonge et al., 1997). Six inpatients were admitted in the double blind, placebo controlled trial in which all subjects were exposed 2x5 consecutive days during 30 minutes to 10,000 lux light and randomly were administered 2.5 mg melatonin or placebo at 22.00 h.

Because of the variability between demented patients, a prospective multiple, double blind n=1 design was chosen. A repeated measures analysis of variance (ANOVA) was utilized to determine differences in the effects of both therapeutical conditions. Measurements on CGI, SDAS and GIP subscales 2,3,5,9,10 and 14 were tested by paired t-tests. For all statistical tests, p-values below 0.05 were considered significant. Only six patients completed the whole trial period. The treatment consisting of light and placebo showed a significant decrease on the CGI concerning motor restlessness (p=.049). Patients were more capable to sit down quiet or to do their pursuits longer, as showed by the GIP subscale 10 item 3 (p=.007) and GIP subscale 10 item 5 (p=.01). Analyses on the melatonin condition showed no significant changes in these scales.
For both conditions, no significant changes were found in social dysfunction and aggression (SDAS), apathetic behaviour (GIP-2), disturbances of consciousness (GIP-3), insurgent behaviour (GIP-5), senseless repetitive behaviour (GIP-9), and anxiety (GIP-14).

It has to be remarked that the number of patients participating in the study was small and further research is recommended. Bright light therapy combined with placebo showed positive effects on motor restlessness. Bright light therapy combined with melatonin showed no influence on motor restlessness in the patients studied in this sample. Research on the effects of a treatment with only melatonin on motor restlessness is recommended.

REFERENCES


