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Cancer Causes Control. 2006 May;17(4):601-9.

The use of chronobiotics in the resynchronization of the sleep-wake cycle.

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Abstract

Treatment of circadian rhythm disorders, whether precipitated by intrinsic factors (e.g., sleep disorders, blindness, mental disorders, aging) or by extrinsic factors (e.g., shift work, jet-lag) has led to the development of a new type of agents called 'chronobiotics', among which melatonin is the prototype. The term 'chronobiotic' defines as a substance capable of shifting the phase of the circadian time system thus re-entraining circadian rhythms. Melatonin administration synchronizes the sleep-wake cycle in blind people and in individuals suffering from delayed sleep phase syndrome or jet lag, as well in shift-workers. The effect of melatonin on sleep is probably the consequence of increasing sleep propensity (by inducing a fall in body temperature) and of a synchronizing effect on the circadian clock (chronobiotic effect). We successfully employed the timely use of three factors (melatonin treatment, exposure to light, physical exercise) to hasten the resynchronization after transmeridian flights comprising 12-13 time zones, from an average of 8-10 days to about 2 days. Daily melatonin production decreases with age, and in several pathologies, attaining its lowest values in Alzheimer's dementia patients. About 45% of dementia patients have severe disruptions in their sleep-wakefulness cycle. Both in aged subjects having very minimal sleep disorders as well as in demented patients with a very severe disorganization of the sleep-wake cycle, melatonin treatment reduced the variability of sleep onset and restored sleep.

PMID:16596316[PubMed - indexed for MEDLINE]

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