

Abstract

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Biorhythms and possible central regulation of magnesium status, phototherapy, darkness therapy and chronopathological forms of magnesium depletion.

Durlach J, Pagès N, Bac P, Bara M, Guiet-Bara A.

SDRM, Univ P et M Curie, Paris VI, France.

BACKGROUND: Biological clock and magnesium status are linked. Central magnesium regulation may be hypothesized. Balanced magnesium status is requested to obtain efficiency of suprachiasmatic nuclei and of pineal gland. Conventional bright light therapy appears as a speedy and efficient antidepressant medication useful for the treatment of various types of depression, and of non migrainous headaches also.

DISCUSSION: Although decrease in melatonin production seems accessory, increases of serotonergy and perhaps of Reactive Oxygen Species constitute the main mechanisms of action. Chromatotherapy emphasizes the effects of short exposure to specific colors. Although the increased production of melatonin constitutes the best marker of darkness, it is only an accessory mechanism of its action. The psycholeptic sedative effects of darkness, like those of magnesium, rely on direct membraneous and oxidant actions, neural mediated effects (i.e. stimulation of inhibitory neuromodulators such as GABA and taurine), and on antagonism of neuroactive gases (CO and NO).

CONCLUSION: Darkness therapy per se, partial substitutive therapy with melatonin and with their mimicking agents (Mg, L-Tryptophan, Taurine) apply to all the chronopathological forms of magnesium depletion with decreased production of melatonin: sleep disorders, migraine, chronic fatigue syndrome, fibromyalgia, some forms of asthma and of sudden infant death syndrome. Further research should assess the importance of the chronopathological forms of magnesium depletion in the physiopathology of these disorders.

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