

Melatonin may save eyesight in inflammatory disease

November 23 2008

Current research suggests that melatonin therapy may help treat uveitis, a common inflammatory eye disease. The related report by Sande et al., "Therapeutic Effect of Melatonin in Experimental Uveitis," appears in the December issue of *The American Journal of Pathology*.

People with uveitis develop sudden redness and pain in their eyes, and their vision rapidly deteriorates. Untreated, uveitis can lead to permanent vision loss, accounting for an estimated 10-15% of cases of blindness in the US. Uveitis has a wide variety of causes, including eye injury, cancer, infection, and autoimmune diseases such as rheumatoid arthritis and multiple sclerosis. There is currently no optimal treatment for uveitis. Corticoid steroid eye drops are often used; however, long-term corticoid use has many negative side effects, including the possible development of glaucoma.

Researchers lead by Dr. Ruth Rosenstein of The University of Buenos Aires and The National Research Council (CONICET) hypothesized that melatonin, which regulates sleep/wake cycles and reduces jet lag, may be able to prevent the ocular inflammation in uveitis. They found in an experimental model of uveitis that levels of two factors that contribute to inflammation, $\text{TNF}\alpha$ and $\text{NF}\kappa\text{B}$, were reduced with melatonin treatment. Importantly, melatonin treatment also decreased the appearance of clinical symptoms of uveitis such as inflammation, blood vessel expansion and cataract, and protected the blood-ocular barrier integrity.

Taken together, the data from Sande et al suggest that "melatonin, which

lacks adverse collateral effects even at high doses, could be a promising resource in the management of uveitis. Alone or combined with corticosteroid therapy, the anti-inflammatory effects of melatonin may benefit patients with chronic uveitis and decrease the rate and degree of corticosteroid-induced complications." Future studies will aim at understanding the mechanisms governing melatonin protection in the eye.

Citation: Sande PH, Fernandez DC, Aldana Marcos HJ, Chianelli MS, Aisemberg J, Silberman DM, Sáenz, DA, Rosenstein RE: Therapeutic effect of melatonin in experimental uveitis. Am J Pathol 2008 173:1702-1713

Source: American Journal of Pathology

Citation: Melatonin may save eyesight in inflammatory disease (2008, November 23) retrieved 5 May 2024 from <https://medicalxpress.com/news/2008-11-melatonin-eyesight-inflammatory-disease.html>

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