MELATONIN MAY REDUCE RISK OF ALZHEIMER'S DISEASE

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Melatonin has recently been shown to reverse the protein complex that is the hallmark of Alzheimer's Disease, according to a study published in the December 11, 2001 issue of the journal, *Biochemistry*, published by the American Chemical Society. The findings of the study are based upon experiments with animals and human cell cultures. The researchers conclude, "Our results clearly demonstrate the ability of melatonin to inhibit the process of forming the signature amyloid protein bundles seen in Alzheimer's Disease". In Alzheimer's Disease, toxic fibrillar aggregates of a protein called amyloid beta protein are the pathologic hallmark of the disease. In the current study melatonin inhibited the formation of amyloid beta protein, which is toxic to nerve cells and accelerates free radical damage to neurons. What is intriguing is the fact that persons with Alzheimer's Disease have been shown to have significantly lower levels of melatonin in their brains.

In addition to acting as a neurotransmitter, melatonin is also a powerful brain antioxidant, which easily crosses the blood-brain barrier when taken as a supplement. A large intervention study (Alzheimer's Disease Cooperative Study), demonstrated that high doses of Vitamin E (2,000 IU per day) could slow the progression of moderately advanced Alzheimer's Disease in human subjects. This effect was thought to be mediated through the antioxidant function of Vitamin E. Of note is the fact that Vitamin E does not easily cross the blood-brain barrier, whereas melatonin very easily enters the brain from the general circulation .In the current study, only melatonin protected brain cells from amyloid beta protein build up and toxicity. Trials with Vitamin C, Vitamin E and a synthetic antioxidant were not protective in this study.

It should be recognized that melatonin levels decline with age and this may, in part, account for the brain's increased susceptibility to dementia and Alzheimer's Disease that accompanies aging. Antioxidants, including melatonin, as well as B-Vitamins are emerging as important natural agents that demonstrate an ability to inhibit many of the pathological changes to brain cells that occur in Alzheimer's Disease and other forms of cognitive impairment. As such, Alzheimer's Disease may be more preventable than previously recognized, through the use of a prudent strategy involving diet and the appropriate introduction of certain supplements at critical points within the lifecycle. The recent study by Pappolla et al, serves to strengthen this argument.

Reference: Pappola M et al, Biochemistry, 2001