

Melatonin effective as breast cancer preventive and treatment in animals

An article published in *Breast Cancer Research*, volume 7, issue 4, 2005 reported the findings of French researchers that administration of the hormone melatonin helps prevent the development of breast cancer in rats in whom the disease was induced, and also treats the disease once it has been initiated.

The researchers gave one group of female rats 10 milligrams per kilogram melatonin daily for 15 days before administering the carcinogen dimethylbenzanthracene (DMBA). A second group of rats received no melatonin prior to receiving DMBA, but were given an identical dose of melatonin each day for six months beginning one day after the cancer-inducing treatment was administered. A control group of 20 rats received DMBA alone. The rats were followed for one year after receiving DMBA.

Animals were checked for tumors every two weeks during follow up. At six months, 75 percent of the control group had mammary adenocarcinomas, compared to 43 percent of those who were given melatonin preventively, and 35 percent of those who were given melatonin as a treatment. Rats who neither received melatonin before or after treatment had an average of four tumors each at nine months, compared to 1.4 in those who were treated with melatonin.

Although many explanations have been offered for melatonin's inhibitory effect on mammary cancer, the authors write that melatonin may inhibit DNA damage because of its free radical scavenging action. They note that changes in circadian rhythms have been associated with the development of cancer, and that boosting melatonin "could restore the deficiency of the circadian clock provoked by the low secretion of melatonin induced by DMBA. Therefore, it can be envisaged that amplifying the intensity of the circadian rhythm of melatonin might help to prevent the induction of the carcinogenic process by DMBA." Treatment with melatonin could reduce the risk of environmentally induced breast cancer in women, they conclude.