



fight against childhood epilepsy & seizures

f.a.c.e.s. is a not-for-profit organization that supports pediatric epilepsy research and programs for children with epilepsy.

The Use of Melatonin in Epilepsy

Josiane LaJoie, MD

Approximately 10-30% of patients with epilepsy continue to have seizures despite medical treatment. In addition, a number of these patients are not candidates for epilepsy surgery. Therefore, it is this group of patients for whom alternative treatments may be helpful.

Melatonin is a hormone that is naturally produced by the body. It is released each evening from the pineal gland in the brain. Its exact role is not known, but is believed to have a large impact on sleep promotion. Melatonin has been used in many neurological conditions including Rett's syndrome, Tuberous Sclerosis, and autism.

In previous studies, it has been shown that not only is melatonin helpful in regulating sleep, but also has anti-seizure properties. Seizures are thought to be the result of an imbalance of neurochemicals and the seizures themselves lead to the production of substances called free radicals which can be damaging to brain cells. Melatonin appears to enhance the major neurochemical GABA, whose function is to stop or inhibit seizures. In addition, melatonin blocks the neurochemical glutamate which promotes seizures. Lastly, Melatonin is an anti-oxidant which means that it blocks the bad effects of free radicals such as brain damage.

There have been numerous studies in animals which show melatonin's effect in blocking seizures and protecting the brain from damage caused by seizures. In one study, the use of melatonin improved the effect of some anti-seizure medications.

There have been a few studies in small numbers of humans which show a significant improvement in seizure control when melatonin is used in conjunction with anti-seizure medications. None of the patients in those studies reported any side effects from melatonin.

The rationale of the use of melatonin in epilepsy patients is two-fold. First, it is well known that sleep deprivation can trigger as well as worsen seizures. Therefore, if a patient's sleep cycle can be regulated then perhaps seizures would be better controlled. Secondly, it is also known that seizures (whether they occur during the day or night)

interfere with sleep. Therefore, stabilizing a patient's sleep patterns, may improve seizure control.

Melatonin is given between 30 minutes to 1 hour before bedtime. The dose is 3 to 10 mg. Some patients may require even higher doses.

Melatonin is a naturally produced hormone which has been shown to be effective in small groups of patients as well as in animal models. It also appears to be safe and well tolerated in patients. Melatonin can be considered as an alternative treatment in addition to standard seizure medications.