Melatonin

1. **Definition:**
   a. Melatonin is a hormone secreted by the pineal gland in the brain.
   b. It helps regulate other hormones and maintains the body's circadian rhythm.

2. **Uses:**
   a. **Insomnia**
      i. Studies suggest that melatonin supplements may help people with disrupted circadian rhythms (such as people with jet lag or those who work the night shift) and those with low melatonin levels (such as some seniors and people with schizophrenia) to sleep better.
      ii. A few clinical studies suggest that when taken for short periods of time (days to weeks) melatonin is more effective than a placebo in reducing the time it takes to fall asleep, increasing the number of sleeping hours, and boosting daytime alertness.
      iii. Some evidence suggests that melatonin may work best for people over 55 who have insomnia.
      iv. One study of 334 people aged 55 and older found that sustained-release melatonin seemed to help people fall asleep faster, sleep better, be more alert in the morning, and improve quality of life in people with primary insomnia.
   b. **Menstruation:**
      i. Melatonin also helps control the timing and release of female reproductive hormones. It helps determine when a woman starts to menstruate, the frequency and duration of menstrual cycles, and when a woman stops menstruating (menopause).
      ii. melatonin levels may drop as we age
   c. **Benzodiazepine Withdrawal**
      i. melatonin may help elderly people with insomnia who are tapering off or stopping benzodiazepines
   d. **Breast Cancer**
      i. Several studies suggest that lower melatonin levels may be associated with breast cancer risk.
      ii. Laboratory experiments have found that low levels of melatonin stimulate the growth of certain types of breast cancer cells, while adding melatonin to these cells slows their growth.
      iii. Preliminary evidence also suggests that melatonin may strengthen the effects of some chemotherapy drugs used to treat breast cancer.
      iv. In a small study of women who were taking tamoxifen for breast cancer but seeing no improvement, adding melatonin caused tumors to modestly shrink in more 28% of the women.
   e. **Prostate Cancer**
      i. Studies show that people with prostate cancer have lower melatonin levels than men without the disease.
      ii. In test tube studies, melatonin blocks the growth of prostate cancer cells.
   f. **Irritable Bowel Syndrome:**
      i. Some preliminary studies suggest that people with IBS who take melatonin reduce some symptoms of IBS, such as abdominal pain.
   g. **Epilepsy:**
      i. Some studies suggest melatonin may reduce the frequency and duration of seizures in children with epilepsy. But other studies suggest melatonin may increase the
frequency of seizures. Do not take melatonin for epilepsy or give it to a child
without talking to your doctor first.

3. Drug preparations:
   a. Melatonin is available as tablets, capsules, cream, and lozenges that dissolve under the
tongue.

4. How to Take It:
   a. Lower doses appear to work better in people who are especially sensitive.
   b. Higher doses may cause anxiety and irritability.
   c. The best approach for any condition is to begin with very low doses of melatonin.
   d. Keep the dose close to the amount that our bodies normally produce (< 0.3 mg per day).
   e. Adult
      i. Insomnia:
         1. 1 to 3 mg 1 hour before bedtime is usually effective,
         2. If 3 mg per night does not work after 3 days, try 5 - 6 mg 1 hour before
            bedtime.
         3. The right dose should produce restful sleep with no daytime irritability or
            fatigue.
      ii. Jet lag:
         1. 0.5 - 5 mg of melatonin 1 hour prior to bedtime at final destination has
            been used in several studies.
         2. Another approach that has been used is 1 - 5 mg 1 hour before bedtime for
            2 days prior to departure and for 2 - 3 days upon arrival at final destination.
   f. Pediatric
      i. Keep doses to less than 0.3 mg/day.
      ii. There is not enough information to say that doses greater than 0.3 mg per day are
          safe in children under age 15.
      iii. In fact, doses between 1 - 5 mg may cause seizures in this age group.

5. Precautions:
   a. Because of the potential for side effects and interactions with medications, people should
take dietary supplements only under the supervision of a knowledgeable health care
provider.
   b. Some people may have vivid dreams or nightmares when they take melatonin.
   c. Melatonin can cause drowsiness if taken during the day. If you are drowsy the morning
after taking melatonin, try taking a lower dose.
   d. Additional side effects include stomach cramps, dizziness, headache, irritability, decreased
libido, breast enlargement in men (called gynecomastia), and decreased sperm count.
   e. Pregnant or nursing women should not take melatonin because it could interfere with
fertility.
   f. Some studies show that melatonin supplements worsened symptoms of depression. For this
reason, people with depression should consult their doctor before using melatonin
supplements.

6. Interactions:
   a. Discuss with you health care provider if you are taking any of the following medications:
   b. Antidepressant medications
      i. Melatonin supplements reduced the antidepressant effects of desipramine and
fluoxetine (Prozac) in animal studies
      ii. Fluoxetine can cause low levels of melatonin
   c. Benzodiazepines
      i. The combination of melatonin and triazolam (Halcion) may improve sleep quality
      ii. melatonin supplements may help patients stop using long-term benzodiazepine
theraphy
d. Blood pressure medications
   i. Melatonin may reduce the effects of blood pressure medications like methoxamine (Vasoxyl) and clonidine (Catopres)
   ii. Calcium channel blockers may lower melatonin levels.
      1. Nifedipine (Procardia)
      2. Amlodipine (Norvasc)
      3. Verapamil (Calan, Isoptin)
      4. Diltiazem (Cardizem)
      5. Felodipine (Plendil)
      6. Nisoldipine (Sular)
      7. Bepridil (Vascor)

e. Beta-blockers
   i. Beta-blockers may lower melatonin levels in the body
      1. Acebutolol (Sectral)
      2. Atenolol (Tenormin)
      3. Bisoprolol (Zebeta)
      4. Carteolol (Cartrol)
      5. Metoprolol (Lopressor, Toprol XL)
      6. Nadolol (Corgard)
      7. Propranolol (Inderal)

f. Anticoagulant:
   i. Melatonin may increase the effect of anticoagulant medications such as warfarin (Coumadin)

g. Interleukin-2:
   i. In one study of 80 cancer patients, use of melatonin along with interleukin-2 led to more tumor regression and better survival rates than treatment with interleukin-2 alone.

h. Nonsteroidal anti-inflammatory drugs (NSAIDs)
   i. NSAIDs such as ibuprofen may lower levels of melatonin in the blood.

i. Steroids and immunosuppressant medications:
   i. Melatonin may cause these medications to lose their effectiveness.

j. Other
   i. Caffeine, tobacco, and alcohol can all lower levels of melatonin in the body.

References:


