Melatonin for sleep: Exhausted by other options?

Clinical Question: Is melatonin effective for sleep disorders?

Bottom Line: The quality of melatonin research is generally poor and at high risk of bias. If the results are believable, melatonin may help people fall asleep faster (~10 minutes) and spend more time asleep (~15 minutes); both of these amounts may be of limited clinical value.

Evidence:

- Six systematic reviews with seven meta-analyses,1-6 included 9-19 randomized controlled trials (RCTs) with 279-1683 patients.1-6 Another systematic review7 duplicated two others.3,4
  - Falling asleep faster: four of six meta-analyses statistically significant.1-5
    - Overall: 4-11.7 minutes sooner.1,3,5
    - “Sleep onset disorder” patients: 23 minutes sooner.2
  - Increasing total sleep time: four of six meta-analyses statistically significant.1-5
    - Overall: 8.2-18.2 minutes more.1,4
  - Improving sleep quality:
    - Perceived sleep quality: standard mean difference=0.22 (0.12-0.32) improvement1 (of marginal clinical significance).
    - Sleep efficiency (time asleep while in bed): two of four meta-analyses statistically significant.3-5
      - Improved 1.9%-2.2%.4,5
  - Jet lag/shift workers: significantly improved total sleep time, 18.2 minutes (8.1 to 29.3), but other outcomes (sleep onset, quality) not improved.4
  - Short-term adverse events: no difference in any including headache, dizziness, nausea, or drowsiness.3,4,7 Long-term unknown.
  - Issues include small studies (averaging only 20-30 patients per RCT),2-5 short duration (many one day,5 most <4 weeks1-5,7), inconsistent results in RCTs,1,3-5,7 low quality (example <25% have concealed randomization),3,7 subjective reporting of sleep (up to ~40% of RCTs use diaries),1 use of rating scale without clinical meaning (subjective jet lag).6
Context:

- Melatonin has inconsistent dose-effect relationship between 0.3-5mg.\(^1\,^3\,^5\,^7\)
  - As a result, the "recommended dose" is 0.3-5mg.\(^8\)
- Melatonin typically taken:
  o Before morning sleep in shift-workers.
  o Close to local bedtime in travelers.
  o ≤2 hours before bedtime in insomnia.\(^6\,^7\,^9\)
- Guidelines suggest melatonin: (1) may be effective for jet lag\(^9\,^10\) and delayed sleep phase disorder;\(^11\) (2) has insufficient evidence for recommendations in insomnia;\(^8\) (3) recommendations in shift-workers variable.\(^9\,^11\)
- Benzodiazepines, non-benzodiazepines, and antidepressants reduce sleep onset latency by 10-20, 13-17, and 7-12 minutes, respectively.\(^12\)
- Melatonin costs ~$2.00-$7.50/month.

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Authors have no conflicts to disclose.

References: