

## MPNs and Insomnia: Tips for Better Sleep

65% of Myeloproliferative Neoplasm, Cancer Patients report Sleep Problems

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Many people struggle with sleep disturbances, and we all know that lack of quality sleep can lead to daytime fatigue, diminished quality of life, and other health problems. What's worse is that the effects of poor quality sleep can, in turn, further disrupt good rest, causing a vicious cycle. With the added diagnosis of a Myeloproliferative Neoplasm (MPN), sleep can be affected by disease symptoms, treatment medications, and disease-related stress. According to patient assessments, 65.4% of MPN patients report insomnia [1]. To make things worse, sleep often falls low on the priority list when visiting your hematologist/oncologist because of many pressing symptoms patients experience. But discussing sleep issues with your doctor can help stop the vicious cycle and restore a touch of balance to patients' lives.

### Symptoms of Sleep Disturbances

Symptoms of sleep disturbances include the inability to fall asleep (Sleep Onset Insomnia), trouble staying asleep (Sleep Maintenance Insomnia), and prolonged daytime fatigue. Sleep Onset Insomnia can be a result of hyperstimulation. This can be caused by chronic stress and the resulting high cortisol levels, blue light from cell phones and TV, caffeine consumed late in the day, high blood glucose levels from a high-sugar diet or insulin resistance, or simply an overactive mind. MPN patients have the additional burden of fears and uncertainty about their cancer, and possible bone or spleen pain.

Sleep Maintenance Insomnia (SMI) can be caused by diet issues, as well. Alcohol is often thought to help people sleep better, at least fall asleep easier, but it actually disturbs sleep overall. According to the National Sleep Foundation, alcohol can affect your circadian rhythm (natural day/night sleep patterns), cause a conflict in alpha and delta sleep rhythms, exacerbate breathing issues and sleep apnea, and block the restorative REM sleep [2]. Hypoglycemia from insulin dysregulation can cause waking up early from hunger.

Other causes of SMI are sleep apnea, having to get up to use the bathroom, or even a rebound effect from short-acting prescription sleep aids or benzodiazepines. For MPN patients, sleep can be disrupted by spleen pain, bone pain, drenching night sweats or digestive problems associated with an enlarged spleen. Post stem cell transplant patients are often on steroids and other medications that make sleep difficult.

The results of insomnia exacerbate the already crippling symptom burden of MPN patients. Daytime fatigue can cause sleeping throughout the day, which further disrupts the sleep cycle. Fatigue also contributes to a sedentary lifestyle, which worsens fatigue. Lack of sleep is also associated with depression and other emotional issues. As concluded in a study article by Holly Lynn Geyer et al, published in Blood Journal:

“Insomnia is highly prevalent and severe in MPN patients and closely correlates with most other MPN-related symptoms and functional domains bearing a multi-faceted impact on overall quality of life. Correlations between insomnia and emotional, cognitive, and physical complaints including depression/sad mood, concentration problems, night sweats, and numbness/tingling in the extremities suggest that the cause of MPN-related sleep complaints is likely complex.” [3]

In additional research by Geyer et al, there has been shown to be a correlation in MPN patients between specific cytokines (associated with inflammation), the disease in which they present as increased, and the symptom burden that follows. In other words, people with Primary Myelofibrosis can have increased levels of PAL1 and RANTES, and those inflammatory markers are associated with insomnia [4]. Though the correlations between inflammation, insomnia, and MPNs are not entirely clear, it makes sense that patients should do everything possible to improve sleep quality.

## Recommendations for Practicing Good Sleep Hygiene

- Avoid use of devices or watching TV for at least an hour before bed. The blue light in electronics can decrease melatonin and disrupt sleep patterns, according to an article by Harvard Health Publishing [5]. If you do use a phone, use a setting such as iPhone's "Nightshift" to make the light have warmer tones that don't stimulate the mind as much.
- Go to bed and wake up at the same time every day.
- Make sure your room is as dark and quiet as possible so there are no distractions, though white noise helps some people.
- Avoid lengthy naps during the day and, especially, naps after 3:00.
- Use the bedroom only for sleep and intimacy, so your mind associates it with relaxation.
- Practice night-time rituals to signal the mind that it is time to wind down. These can include a warm bath or shower, spiritual or mind-body practices, listening to relaxing music—whatever you find relaxing that can become a routine.
- Avoid caffeine in the afternoon, and limit alcohol in the evening. A light, healthy snack before bed can stabilize blood sugar for the night, but check with your doctor on what is right for you.
- Don't drink too much water right before bed, as that might mean frequent trips to the bathroom.

In addition to good sleep hygiene, there are supplements and medications that can help with insomnia. Of course your doctor is the best source for what is right for you, and make sure there is communication between your primary care doctor and your oncologist to avoid drug interactions. Here is a list of some that might be useful:

### Supplements

- Melatonin—A hormone that regulates sleep-wake cycles, it can help signal the body that it is time to sleep, and may cause you to fall asleep a bit faster.
- Magnesium Citrate— A drink mix such as Calm can be helpful for sleep, but also has some laxative effect.
- Valerian—A root extract from the Valerian plant that is used as a sedative to promote sleep, but its effectiveness has not been proven in studies.
- Chamomile—An herb that is often enjoyed in tea to help relax, though studies have not proven that it helps sleep.
- Kava— The root of the Kava plant is used in many cultures as a sedative. It is likely safe for short-term use, but could cause hepatotoxicity.
- CBD Oil—Many people believe that this non-psychoactive extract of the hemp plant helps relaxation and sleep, but research is mixed and production is not well regulated, so safety and consistency can vary. Check with you doctor before using any of these.

### Prescription and Over the Counter Drugs

- Lunesta (Eszopiclone)—Lunesta is a sedative/hypnotic, which can help you fall asleep and stay asleep for 7-8 hours, but also can have side effects of headache, nausea, dry mouth, and dizziness, and sleepwalking without memory. Should be used cautiously in the elderly or those with liver conditions. It can be addictive [6].
- Silenor (Doxepin)—Silenor is a tricyclic antidepressant that helps insomnia, but can cause dry mouth, blurry vision, and constipation. It should not be used in those with glaucoma. [7].
- Ambien (Zolpidem)—Ambien is a sedative/hypnotic which can help you fall asleep, but doesn't help you stay asleep unless you use an extended-release formulation. Can cause sleep-walking without memory of what you did, and can be addictive [8].
- Sonata (Zaleplon)—Like Ambien, Sonata can help you fall asleep, but not stay asleep. Though it is short-acting it may cause impaired driving the next day.
- Belsomra (Suvorexant)—This drug blocks a hormone responsible for wakefulness and is effective for insomnia, but can cause grogginess the next day and might be addictive [9].
- Antihistamines as a nighttime sleep aid (Advil or Tylenol PM)—These medications can help you sleep, but can cause grogginess the following day, and dry mouth.
- Benzodiazepines such as Xanax (alprazolam)—Benzodiazepines can help temporarily with anxiety or falling asleep faster, but is addictive, and non-extended release alprazolam can cause a rebound effect after wearing off, which can cause nighttime waking. It also loses its effectiveness after a short period of time, so should be only used short-term.

[Publisher's note, David - I found Xanax to be highly addictive, causing physical and psychological cravings for the drug. My hematologist referred me to a psychiatrist when I asked about assistance for fatigue and changing other meds. I wasn't fond of seeing a psychiatrist, thinking they are just for loonies, my heme assured me, everyone he referred was very pleased with this doctor. That turned out to be a great move! He's an outstanding doctor who has direct access to all my cancer meds (very important)...so he can be sure anything he prescribes will not interact with my PV treatment. I asked him about switching from Xanax to Valium, he agreed it was a better choice for numerous reasons. For me, it was a 100% improvement!]

One of the most important things an MPN patient can do for his health is to work on healthy sleep habits, so that drugs are not needed, but there is no shame in taking medication to help get on a consistent sleep pattern.

Hopefully, with rest, the body will have the best chance of repairing itself, or at least not developing additional disease. Be proactive and bring any issues up with your doctor, and persist at trying new things until you find what works for you. Then, try to stick with your new healthy habits and enjoy the positive cycle of health that you can create.

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