Overview of the Problem

Inadequate or dissatisfying sleep is the most common sleep disturbance in America. As many as 40% of adult Americans report at least occasional insomnia, and of those, nearly 20% have severe insomnia. Severe insomnia is defined as difficulty initiating or maintaining sleep at least three times a week for 1 month or more, with the problem being bad enough to cause fatigue during the day or impaired functioning.

Women are 30% more likely than men to report their insomnia, and it is more likely to be more severe. Sleep problems are especially common in peri-menopausal women and increase after age 40 and plateau by age 50. Sleep problems are also more comorbid with medical and psychiatric disorders, which are more prevalent, or at least more reported, in women.

Women and men over 65 are 50% more likely to complain of insomnia than younger individuals. Chronic health problems and increased use of medications associated with aging also increase the risk of sleep disruptions.

Twenty-nine percent of women report medications needed improve their sleep. Of those, nearly one-third rely on over-the-counter drugs, 13% use prescription drugs, and others use both.

Effects of Sleep Disruptions

Insomnia is associated with quality of life, productivity, depression, anxiety, cognition, and even safety.

Individuals with insomnia have significantly greater impairment in their daily life functions than people without insomnia. Psychomotor and cognitive performance, attention, response time, and work performance, are all disrupted and altered in patients with sleep disorders. The good news is that they are all reversible with treatment of the insomnia. Insomnia may also be associated with an increased risk of developing cardiovascular disease. In one study, women who had trouble with sleep onset or who had nighttime sleep disruption had significantly higher systolic and diastolic blood pressures than women without these sleep problems.1

Evaluation

Determining the specific underlying cause of the insomnia is not only important in selecting the appropriate treatment, but important in recognizing other concurrent medical conditions that may need treatment. Insomnia is considered a symptom of an underlying problem. Medical conditions and issues that can cause insomnia include hormonal changes, headaches, respiratory problems, arthritis, fibromyalgia, psychiatric and mood disorders, congestive heart failure, GERD, restless leg syndrome, anxiety, nocturnal hypoglycemia, chronic or intermittent pain, cancer, Alzheimer's disease, Parkinson's disease and peripheral vascular diseases. A thorough history, physical exam and selected medical testing should be done to determine a differential diagnosis for any of these other conditions. Other causes can include caffeine, alcohol, nicotine, recreational drugs, medications, and stress.

Determining the chief sleep symptom is the first step in the evaluation process of insomnia. For example, difficulty in falling asleep, early awakening, and frequent night time awakenings. A sleep diary can be useful in identifying the sleep problems. The diary should indicate bed times, awakening times, timing and quantity of meals, use of alcohol, caffeine, drugs, medications, exercise and its timing, duration of sleep, and rating of the sleep quality. Snoring can be reported by their bed partner. The diary should be kept daily for at least several weeks or even months in order to properly assess sleep patterns.

Sleep Problems Specific to Women

Menstrual Cycle: Sleep quality can vary during the menstrual cycle in premenopausal women. More sleep disturbances have been found during the late luteal phase compared with the midfollicular phase although these differences can be small or significant depending on the individual.2 Women can experience a longer time falling asleep and more awakenings after sleep onset as well as decreased sleep quality and efficiency during the premenstrual phase. It has been thought that the luteal phase sleep disruptions may be due to an increase in core body temperature. Women with premenstrual dysphoric disorder (PMDD) tend to have a higher percentage of stage 2 sleep (relatively light non-rapid eye movement), especially in the follicular phase, and less stage 3 sleep (deep non-rapid eye movement), in both phases of the cycle. They also have a lower percentage of rapid eye movement (REM) sleep, greater intermittent wakefulness and more disturbed sleep patterns.4

Menopause: Women may experience many sleep disturbances during the perimenopause transition and menopause itself, especially those who do not take hormone replacement therapy (HRT). These sleep problems may be due to nighttime vasomotor symptoms, anxiety, or the effect of hormonal changes on brain neurotransmitters. HRT is not FDA-approved as a treatment for insomnia. However, oral HRT has been shown to improve nighttime restlessness and awakening and is proven to relieve vasomotor symptoms. HRT has also
been observed to decrease sleep disordered breathing. Using natural progesterone vs a progestin may also improve sleep due to the sedative effects of natural progesterone.

**Pregnancy:** Changes in sleep duration and quality are common during pregnancy and especially in the weeks right before delivery. In a study of 100 prenatal women, only 32 reported normal sleep during their pregnancy. As the pregnancy progressed, sleep became more disturbed. These sleep maintenance difficulties are thought to be due in large part to the effects of hormonal changes. Modifications in sleep EEG have been observed.

Pregnant women can also experience a significant increase in waking after sleep onset in the last trimester. This may be a consequence of nocturia, changes in sleep posture with increased abdominal size, fetal movements and low back pain.

**Postpartum:** The postpartum period is full of many variables. Early on, sleep may be reduced by discomfort from a cesarean section or episiotomy, hemorrhoids, excitement, anxiety about the baby, frequent visitors and hospital routines. As time goes on, care of the infant can cause sleep loss due to nighttime awakenings of the infant and nursing.

Postpartum depression related to stressors and hormonal changes can also be a cause of sleep loss. Women who have been previously depressed have a greater risk of postpartum depression. Many changes are occurring at this time and the stressors are most likely greater for those women with low social support or are single mothers. The combination of recovery from the birth, changes in the household routines, nursing, body image and hormonal changes can all contribute to depression and subsequent insomnia. Chronic sleep deprivation then exacerbates her ability to adapt to the new demands which may lead to anxiety, a deepening depression, and fatigue.

**Stress, Anxiety, Depression:** More than half of patients who seek care for insomnia are diagnosed with a mood disorder. The most common of these is depression. The relationship between insomnia and depression is strong yet not well understood. Insomnia can occur with depression, be a precursor to depression, and can be a result of depression. The risk of developing a major depression had been shown to be significantly greater in patients who report insomnia at study baseline interviews. However, this relationship has not been consistent in all studies. It is logical that stress and anxiety often induce sleep difficulties. In addition, anxiety and depression may be associated with changes in premenstrual hormone levels, or perimenopausal hormone changes and, as such, may lead to increases in sleep disturbances.

Even mild anxiety and depression can be associated with disturbed sleep in women. In a study of healthy middle-aged women who reported sleep disturbances, they showed greater psychological distress than women with normal sleep. Depressive symptoms were more common and the levels of stress and anxiety were higher in women who reported sleep disturbances. Women with nightly or almost nightly sleeping problems had significantly more distress than women who had less sleep problems, less than once a week.

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Sleep Disorders in Women

Natural Treatment Methods and Management

Sleep Hygiene and Behavioral Techniques: In determining individualized treatments for insomnia, it is imperative to identify the underlying cause, address that chronic influence, and in addition, provide options for short term relief.

The basics start with good sleep hygiene. This includes going to bed at the same time each night and avoiding or reducing naps. If the bedtime varies by necessity, then the waking times should remain the same in order to stabilize the sleep-wake schedule. Regular exercise can be helpful but not near bedtime. A comfortable bed and room temperature along with low levels of light and noise contribute to better sleep hygiene.

It is often advised that the bedroom should not be used for eating or television but rather only for sleep and intimacy. If the patient is not able to fall asleep after 20 to 30 minutes in bed, it is advised that they get out of bed and participate in quiet activity and then return to bed when sleepy. Another helpful trick is to place the alarm clock where they cannot see it during the night.

There may be nutritional influences on sleep. Caffeinated drinks being the obvious, they may have to avoid altogether or at least none within 12 hours of sleep. Some individuals have nocturnal hypoglycemia. A drop in blood glucose level causes the release of adrenaline, glucagon, cortisol and growth hormone. These compounds can stimulate the brain. Complex carbohydrates with protein can help maintain sleep through the night by regulating night time blood glucose levels.

Relaxation techniques such as biofeedback and progressive muscular relaxation can help sedate some people. Regular evening rituals such as warm baths, meditation, or soothing music may also reduce anxiety and stress. A study of 52 women over 70 y.o. were studied for their sleep quality, and sleep latency. They kept a diary for 10 nights prior to adding music to their routine. They then added music listening before bed for 10 more nights. After listening to the music, the level of sleepiness was significantly increased and the time to sleep onset was much lower. The music also became more effective each night of continued use.

Behavioral interventions such as sleep restriction therapy and/or cognitive-behavior therapy can also be a successful long term approach which especially targets those who have stress maladaptation problems, or cognitive patterns that perpetuate insomnia.

Hormonal Treatments: We know that estrogen receptors and estrogen are found in the regions of the brain that are responsible for regulating sleep. Also, in postmenopausal women who have insomnia, practitioners and women will report that HRT diminished their sleep complaints. Some studies of insomnia in postmenopausal women demonstrate that HRT significantly improves sleep quality, shortens sleep onset and reduces nighttime restlessness and awakenings.

There appear to be significant advantages of using oral micronized progesterone with an estrogen vs using synthetic medroxyprogesterone acetate (MPA). Sleep efficiency and time spent awake after sleep onset appear to be significantly better when using oral micronized progesterone with estrogen replacement therapy but not in the MPA group.

Selected Nutritional and Herbal Treatments

Melatonin may be one of the better-known natural treatments for insomnia. One placebo-controlled trial on melatonin found that 0.5 mg of melatonin in either immediate or sustained release form for 2 weeks shortened the amount of time it took to fall asleep but had no effect on sustaining sleep or improving the quality of the sleep. In another study, 2 mg per day of melatonin was effective in improving sleep efficiency. Melatonin has also been effective in patients with long-term insomnia who were using benzodiazepines. Fourteen of eighteen patients were able to decrease their benzodiazepines by 50% during week 2 and discontinue during weeks 5 and 6 by using 2 mg of melatonin nightly. Only 4 of 16 were successful in the benzodiazepine plus placebo group. Six additional patients given placebo in the first phase discontinued their benzodiazepine in the second phase when they were given the melatonin. Nineteen of the 24 patients who discontinued the benzodiazepine and utilized the melatonin were able to maintain good sleep quality. It is thought that individuals who actually have a melatonin deficiency are most responsive to melatonin for insomnia.

5-hydroxytryptophan (5-HTP), a form of tryptophan has been reported in numerous double-blind studies to decrease the time required to get to sleep and to decrease the number of night awakenings.

Valerian has been used for decades as sedatives, including as a aid for insomnia. Studies have confirmed the effectiveness of valerian. In a double-blind study from Switzerland, an aqueous extract of valerian improved sleep latency, reduced night awakenings, and improved sleep quality, especially in women. Several trials have looked at valerian in combination with other herbal sedatives such as passionflower and lemon balm. In one clinical trial, 98 men and women without insomnia took valerian and lemon balm 30 minutes before bed: 33% of the participants in the valerian/lemon balm group reported an improvement in sleep quality; only 9% reported this in the placebo group.

Numerous plants have sedative actions and have been used historically to promote sleep and improve sleep quality. These include hops, skullcap, chamomile, lemon balm, oatstraw, lavender, bitter orange, California poppy and kava. Preparations can include powdered capsules, tinctures, and teas. Most of these herbs are mild sedatives and are unlikely to suffice alone, but are typically used in combinations.

Conclusion

Insomnia is not only a frequent medical problem but a difficult one. Insomnia is usually a symptom of an underlying problem and the practitioner must attempt to discover what might be the cause — hormonal, nutritional, pharmacologic or psychological. Two primary goals exist: treatment of the specific underlying problem and treating the immediate insomnia in the short term. Patients may need to be referred to evaluate for sleep apnea, for treatment of psychological issues, or for pharmacologic treatment.

References

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introduced by one manufacturer resulted in an epidemic of eosinophilia myalgia syndrome several years ago.

**L-5-Hydroxytryptophan**

While much less studied than L-tryptophan, L-5-hydroxytryptophan, the immediate precursor to the neurotransmitter serotonin, also appears to be effective in promoting sleep. Moreover, it may be more effective than L-tryptophan in improving sleep patterns as it increases the amount of time spent in REM sleep (during which dreaming occurs), while L-tryptophan decreases the time spent in this important sleep stage.16

**References**


