

# Valerian

SUSAN HADLEY, M.D., Middlesex Hospital, Middletown, Connecticut  
JUDITH J. PETRY, M.D., Vermont Healing Tools Project, Brattleboro, Vermont

**Valerian is a traditional herbal sleep remedy that has been studied with a variety of methodologic designs using multiple dosages and preparations. Research has focused on subjective evaluations of sleep patterns, particularly sleep latency, and study populations have primarily consisted of self-described poor sleepers. Valerian improves subjective experiences of sleep when taken nightly over one- to two-week periods, and it appears to be a safe sedative/hypnotic choice in patients with mild to moderate insomnia. The evidence for single-dose effect is contradictory. Valerian is also used in patients with mild anxiety, but the data supporting this indication are limited. Although the adverse effect profile and tolerability of this herb are excellent, long-term safety studies are lacking. (Am Fam Physician 2003;67:1755-8. Copyright©2003 American Academy of Family Physicians)**

**T**he root of valerian, a perennial herb native to North America, Asia, and Europe, is used most commonly for its sedative and hypnotic properties in patients with insomnia, and less commonly as an anxiolytic. Multiple preparations are available, and the herb is commonly combined with other herbal medications. This review addresses only studies that used valerian root as an isolated herb. As with most herbal products available in the United States, valerian root extracts are not regulated for quality or consistency. Independent testing laboratories (such as [www.consumerlab.com](http://www.consumerlab.com)) generally use valeric acid content as a marker for pharmacologic activity and represent one source for reliable information to support product choice.

## Pharmacology

The chemical composition of valerian includes sesquiterpenes of the volatile oil (including valeric acid), iridoids (valepotriates), alkaloids, furanofuran lignans, and free amino acids such as  $\gamma$ -aminobutyric acid (GABA), tyrosine, arginine, and glutamine. Although the sesquiterpene components of the volatile oil are believed to be responsible for most of valerian's biologic effects, it is likely that all of the active constituents of valerian act in a synergistic manner to produce a clinical response.<sup>1</sup> Research into physiologic activity of individual components has demonstrated direct sedative effects (valepo-

triates, valeric acid) and interaction with neurotransmitters such as GABA (valeric acid and unknown fractions).<sup>2,3</sup>

## Uses and Efficacy

### SEDATIVE/HYPNOTIC

Several clinical studies have shown that valerian is effective in the treatment of insomnia, most often by reducing sleep latency. A double-blind, placebo-controlled trial<sup>4</sup> compared a 400-mg aqueous extract of valerian and a commercial valerian/hops preparation with placebo of encapsulated brown sugar. A total of 128 volunteers completed a subjective study<sup>4</sup> evaluating the effects of single doses of each test compound taken in random order on sleep latency, sleep quality, sleepiness on awakening, night awakenings, and dream recall. Valerian extract demonstrated statistically significant improvement over placebo in sleep latency and sleep quality. There was no difference between valerian extract and placebo in the other two parameters. The commercial valerian/hops preparation resulted in no changes in sleep latency, sleep quality, or night awakenings, and an increase in sleepiness on awakening. No information on the preparation of the commercial product was available, so the reasons for the lack of effect are unknown.

Examination of the study subgroups showed that the positive effects of valerian extract on sleep were most significant in older male patients who considered themselves to be poor sleepers, female poor sleepers,

*See page 1649 for definitions of strength-of-evidence levels.*

younger poor sleepers, smokers, and those who habitually have lengthy sleep latencies. Subjects who rated themselves as habitually good sleepers were largely unaffected by the valerian extract.<sup>4</sup>

In a double-blind study,<sup>5</sup> eight subjects who described themselves as having lengthy sleep latency wore a wrist activity meter and provided subjective sleep ratings in a study of the effects of valerian. Participants received either a 450- or 900-mg dose of an aqueous extract of valerian root or placebo. Single-dose (450 and 900 mg) valerian extract resulted in significant decreases in measured and subjective sleep latency and more stable sleep during the first quarter of the night, with no effect on total sleep time. The 900-mg dose produced increased sleepiness on awakening compared with placebo.

A randomized, placebo-controlled, double-blind, cross-over study<sup>6</sup> involving 16 patients with insomnia confirmed by polysomnography demonstrated no effects on sleep efficiency after a single 600-mg dose of the valerian extract Sedonium, while multiple doses over 14 days resulted in significant improvement in parameters of slow-wave sleep measured by polysomnography. There was a nonsignificant trend toward reduced subjective sleep latency after the long-term valerian treatment.<sup>6</sup>

Several studies have shown valerian's efficacy in patients who do not have sleep disturbances. A small study<sup>7</sup> of 10 patients at home and eight patients at a sleep laboratory who received two different dosages (450 and 900

mg) of an aqueous extract of valerian root demonstrated that both groups experienced a greater than 50 percent improvement in sleep latency and wake time after sleep onset. The efficacy results were based on questionnaires, self-rating scales, and nighttime motor activity. Electroencephalographic recordings in the laboratory section of the study showed no differences in efficacy between valerian and placebo, and data indicated a dose-dependent mild hypnotic effect of the valerian extract.<sup>7</sup>

A recent systematic review<sup>8</sup> of randomized trials of the effect of valerian on patients with insomnia included reports in all languages.<sup>8</sup> [Evidence level B, systematic review of studies other than randomized controlled trials (RCTs)] The authors found nine randomized, double-blind, placebo-controlled trials that met the inclusion criteria. Two studies<sup>9,10</sup> showed improvement in sleep-related parameters in patients with insomnia who received repeated administration over two to four weeks. Another study<sup>11</sup> demonstrated effects after days 1 and 8 in slow-wave sleep, but no effect on subjective measures of sleep. Results were contradictory in six acute-dose studies.<sup>4,5,7,12,13</sup> The authors pointed out the wide variety of methodologies used in the studies, and the lack of attention to factors such as randomization, blinding, compliance, withdrawal, confounding variables, diagnostic criteria, and statistical analysis. They concluded that evidence for valerian in the treatment of insomnia is inconclusive, and that more rigorous trials are necessary.

A recent multicenter<sup>14</sup> (RCT) compared a 600-mg dose of the valerian extract Sedonium with 10 mg of oxazepam over a six-week period in 202 patients who were diagnosed with non-organic insomnia. The two agents were equally effective in increasing sleep quality as measured by the Sleep Questionnaire B (SF-B), and these results were confirmed by subscales of the SF-B, the Clinical Global Impression Scale, and the Global Assessment of Efficacy. Mild to moderate adverse events occurred in 28.4 percent of patients receiving the valerian extract and 36.0 percent of patients taking oxazepam.

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## The Authors

SUSAN HADLEY, M.D., is on staff in the family practice division at Middlesex Hospital in Middletown, Conn. She is also a member of the Board of Integrative Medicine at Middlesex Hospital. She received her medical degree from the University of Arizona College of Medicine, Tucson, and completed a social medicine residency at Montefiore Medical Center, Bronx, N.Y.

JUDITH J. PETRY, M.D., is a consultant in integrative medicine in Westminster, Vt., and medical director of Vermont Healing Tools Project in Brattleboro. She received her medical degree from Albany Medical College, Albany, N.Y., and is board certified in general surgery and plastic surgery.

*Address correspondence to Susan Hadley, M.D., Middlesex Hospital, 90 S. Main St., Middletown, CT 06457 (e-mail: susan\_hadley@midhosp.org). Reprints are not available from the authors.*

## Anxiolytic

Traditional herbalists have used valerian as an anxiolytic, frequently in combination with other herbal preparations such as passion flower and St. John's wort. There is a minimal amount of scientific data confirming this indication for valerian. One randomized, double-blind, placebo-controlled trial<sup>15</sup> compared valerian (100 mg) with propranolol (20 mg), a valerian-propranolol combination, and placebo in an experimental stress situation in 48 healthy subjects. Unlike propranolol, valerian had no effect on physiologic arousal but significantly decreased subjective feelings of somatic arousal.

In a recent preliminary, randomized, double-blind, placebo-controlled trial,<sup>16</sup> 36 patients with a diagnosis of generalized anxiety disorder were treated with placebo, diazepam in a dosage of 2.5 mg three times daily, or valerian extract in a dosage of 50 mg three times daily (80 percent dihydrovaltrate, 15 percent valtrate, and 5 percent acevaltrate; BYK-Gulden, Lomberg, Germany) for four weeks. Dosage was regulated at one week if an interviewing psychiatrist deemed an increase or decrease necessary. Although the study was limited by a small number of patients in each group, relatively low dosages of the active agents, and a short duration of treatment, the authors found a significant reduction in the psychic factor of the Hamilton Anxiety Scale (HAM-A) with diazepam and valerian.

Another RCT<sup>17</sup> compared 120 mg of kava (LI 150), 600 mg of valerian (LI 156), and placebo taken daily for seven days in relieving physiologic measures of stress induced under laboratory conditions in 54 healthy volunteers. Valerian and kava, but not placebo, significantly decreased systolic blood pressure responsivity, heart rate reaction, and self-reported stress. (NOTE: "LI 156" is an identification number referring to the specific herb and the manufacturer; in this case, Lichtwer Pharma UK, Ltd.)

## Contraindications, Adverse Effects, Interactions

Valerian is listed by the U.S. Food and Drug Administration as a food supplement and is,

therefore, not subject to regulatory control beyond labeling requirements. According to Commission E monographs,<sup>18</sup> there are no contraindications to valerian. Reported adverse effects of valerian are rare. In a 14-day, multiple-dose study<sup>6</sup> of 16 patients, there were only two adverse events (migraine and gastrointestinal effects) in patients receiving valerian compared with 18 events in patients receiving placebo. A randomized, controlled, double-blind study<sup>19</sup> of 102 subjects evaluated reaction time, alertness, and concentration the morning after using valerian root extract (600 mg, LI 156) and found no negative effect in single- or repeated-dose administrations of valerian. Only one adverse effect (dizziness) was attributed to the valerian extract.

No evidence of potentiation of valerian effects by concomitant ingestion of alcohol has been found in animal and human studies, but the combination should still be avoided.<sup>1,20</sup> Valerian may potentiate the sedative effects of barbiturates, anesthetics, and other central nervous system depressants.<sup>21</sup> One case report<sup>22</sup> suggests that sudden cessation of long-term high dose valerian therapy (530 mg to 2 g, five times daily) may result in withdrawal symptoms similar to those occurring with benzodiazepine use. Perhaps because of the poorly defined effects of valerian on GABA neurotransmission, valerian appears to attenuate benzodiazepine withdrawal symptoms in animals and humans.<sup>23,24</sup>

## Dosage

Based on the reviewed studies, the effective dosage of valerian root extract for treatment of insomnia ranges from 300 to 600 mg. An equivalent dose of dried herbal valerian root is 2 to 3 g, soaked in one cup of hot water for 10 to 15 minutes.<sup>25</sup> The product should be ingested 30 minutes to two hours before bedtime.

## Final Comment

Valerian is a safe herbal choice for the treatment of mild insomnia and has good tolerability. Most studies suggest that it is more effective when used continuously rather than

TABLE 1

**Key Points About Valerian**

Efficacy	In mild to moderate insomnia: appears effective In anxiety: limited evidence supports efficacy
Adverse effects	Rare: headache, gastrointestinal effects
Interactions	No significant herb/drug interactions with valerian have been reported. May potentiate sedative effects of barbiturates, anesthetics, and CNS depressants.
Dosage	Varies depending on brand; typically, 300 to 600 mg in capsules taken 30 minutes to two hours before bedtime, or 2 to 3 g of the dried root*
Cost	\$0.08 to \$0.30 per capsule, depending on brand
Bottom line	Safe herbal medicine; effective in treatment of mild to moderate insomnia

CNS = central nervous system.

\*—Add 2 to 3 g of dried root to one cup hot water and strain after 10 to 15 minutes.

as an acute sleep aid; more rigorous studies are needed to confirm these results. A potential advantage of valerian over benzodiazepines is the lack of sleepiness on awakening when used at the recommended dosages. Valerian also may be helpful in weaning patients with insomnia from benzodiazepines. The use of valerian as an anxiolytic requires further study. Long-term safety studies are lacking. *Table 1* discusses the efficacy, safety, tolerability, and cost of valerian.

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