VALERIAN

(*Valeriana officinalis*)

A Sleep Aid and Anxiolytic

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BACKGROUND AND USES

There are over 205 plants throughout the world that belong to the genus Valeriana, but Valeriana officinalis is the species we find almost exclusively in our valerian preparations in the West. Valerian root has been used throughout history at least as far back as ancient Greece and China. It has been used as a sleep aid and to alleviate restlessness in North America and Europe since the mid-1800s. The pharmacological agent valium was an early replacement for valerian.

Currently, valerian enjoys popularity as a sleep aid, sedating/calming agent, and to relieve intestinal or uterine spasms. Historical applications include angina pectoris, amenorrhea, anticonvulsive, antispasmodic, antiviral, arthritis, asthma, congestive heart failure, cough, abdominal/pelvic/menstrual cramping, digestive problems (such as constipation, irritable syndrome, heartburn and peptic ulcers), nervousness, stress, insomnia, vertigo, migraines, tachycardia, muscle pains and more.

ACTIVE CONSTITUENTS

Valerian root contains at least 150 compounds, but the major constituents are the valepotriates, which includes valtrate, volatile oils, valerenal, valeranone and valerenic acid, lignans and alkaloids. Some other agents that are present include gamma-aminobutyric (GABA), tyrosine, arginine and glutamine. The constituents that we understand the most are the valerinic acid and the valepotriates. One of the most notable characteristics of valerian is the very strong odor which is likely generated by its isovaleric acid.

MECHANISMS OF ACTION

The essential oils and flavonoids of valerian root appear to provide sedative and anxiolytic properties.[1] The valepotriates regulate the autonomic nervous system.[2] It is thought that many of the 150 compounds in valerian root act synergistically with each other,[3, 4] which makes it difficult to fully understand the mechanisms of action of this root. We have some evidence that some of the components of valerian can interact with the neurotransmitter GABA and benzodiazepine receptors, thereby having a calming effect.[5,6,7] There is also some evidence that valerian produces a dose-dependent release of GABA [7] and inhibits the breakdown of GABA in the brain, resulting in a sedative effect.[8]

CLINICAL RESEARCH SUMMARY

Insomnia Effects

There are over a dozen randomized trials using valerian for insomnia. A select few that are larger with more meaningful results are reviewed here. A comparison of 600 mg/day of valerian standardized extract was compared to 10 mg/day of the benzodiazepine oxazepam for 6 weeks for individuals with insomnia for at least 3.5 months.[9] There appeared to be no statistically significant difference between the two, which bodes well for the valerian extract. In fact, 83% of the patients rated valerian as very good versus 73% who rated the oxazepam as very good.

In a study of 121 patients with nonorganic insomnia, at 14 days, there was no significant effect; but at 28 days of treatment with either valerian extract of 600 mg/day one hour before bedtime or placebo, there was a statistically significant difference for valerian.[10] This suggests that the effect of valerian accumulates over time with the optimal effects occurring after about one month.

Another valerian versus oxazepam study was done but this time, in 75 older women.[11] A dry ethanolic valerian extract of 600 mg/day was compared with 10 mg/day of oxazepam. Each was taken for 28 days, and again, there was improvement in both, and no significant difference between the two on sleep quality.

Some studies have used valerian in combination with one or more other herbs. The affect of sleep latency and sleep quality was studied in 128 individuals using either placebo or 2 capsules of valerian (200 mg) plus hops (100 mg) in each capsule, or 2 valerian capsules of 200 mg dried root powder nightly before bedtime on successive nights.[12] Sleep latency improved with the valerian root alone in 37% of patients versus 31% in the combination product (non-significant) and 23% (non-significant) in the placebo group. The greatest benefit was seen in the poor sleepers who were > 40 years old. For sleep quality, 43% of the patients who received valerian alone improved versus only 25% in the placebo group and no significant improvement in the combination group.

Another combination study examined the effects of 400 mg of valerian, 160 mg of lemon balm and 375 mg of hops, compared with another combination product (considered the control group) with insignificant amounts of valerian plus the 160 mg of lemon balm and 375 mg of hops.[13] Individuals were randomized to one combination product on the first night and then the other on the next night. Sleep quality was clearly better or even perfect in 78% of the patients who took the 400 mg of valerian with the lemon balm and hops compared to only 11% of those in the control group. No improvement at all was seen in 15 of 27 of the control group and only 3 of those seen in the valerian group.

Chronically ill patients can also have chronic insomnia. In this kind of group, valerian aqueous extract capsules were given at 3 caps twice daily versus placebo for 14 days.[14] After two weeks, improvement in the valerian group was greater than for placebo in all measures of sleep that were evaluated.

Sleep disorders can also be a significant problem for cancer survivors. While there are many prescription options available, there are also side effects which can be more undesirable in cancer patients who may already be suffering from fatigue, nausea and more. The purpose of one particular trial was to evaluate the efficacy of valerian for sleep in individuals who were undergoing cancer treatment.[15] Participants were randomized to receive 450 mg of valerian or placebo orally 1 hour before bedtime for 8 weeks. While there was no evidence that valerian at bedtime improved sleep on the sleep quality index, less drowsiness, fatigue and mood states did improve in cancer survivors receiving valerian.

As of the writing of this article, the most recent study on valerian and insomnia was published showing the impact of valerian for sleep quality in postmenopausal women who were experiencing insomnia.[16] The postmenopausal women studied were generally healthy women aged 50 to 60 years who were menopausal for at least 1 year, were not using hormone therapy, and were experiencing insomnia. One group of women was given capsules containing 530 mg of concentrated valerian extract twice per day, and the other group was given placebo twice per day, for 4 weeks. A statistically significant change was reported in the quality of the sleep in the valerian group when compared to the placebo group. The average score on the sleep scale before valerian was 9.8 and after valerian it was 6.02. The placebo group had an initial average sleep scale score of 11.1 and after placebo, 9.4. Overall, 30% of the women taking valerian and 4% taking placebo reported an improvement in their sleep quality.

Not all published data and reports on valerian for insomnia have shown effectiveness. A systematic review described 37 studies that met criteria for the review.[17] Twenty nine were controlled trials for efficacy and safety and 8 were for safety only. Most of the studies in this review found no significant differences between the valerian and the placebo although safety was confirmed with only rare adverse events.

An earlier systematic review was published in 2000. Nine trials between 1984 and 1996 met the inclusion criteria. Several trials had positive effects on sleep latency or sleep quality. Three of the studies evaluated the cumulative effects of long-term use of valerian and six were identified that investigated the effects of a single dose of valerian. Two of the three studies on cumulative effects found that effects were observed by 2 weeks. Three of the six studies looking at single dose acute effects found that valerian produced positive effects. However, in the other three, the effects were no better than placebo.

Another systematic review of randomized, placebo-controlled trials of valerian and sleep quality, published in 2006, involved a literature search that identified 16 studies and a total of 1093 patients.[18] Sleep quality was reported in 6 studies and showed a statistically significant benefit. The authors' conclusion was that valerian might improve sleep quality with no significant side effects.

Anxiety Effects

Several studies have looked at valerian for anxiety and panic disorder as monotherapy and in combination with other herbs. A valerian extract of 81 mg was compared to 6.5 mg/day of diazepam or placebo in 36 patients with generalized anxiety disorder who were randomized to one of the groups. Patients in all three groups had significant improvements in the Hamilton Anxiety Scale (HAMA) compared to baseline after 4 weeks. Patients in only the diazepam group had improvements using the State-Trait Anxiety Index (STAI-trait) as an evaluation tool.

In a study of 80 adults with a variety of anxiety disorders, 270 mg/day of a valerian extract was compared to clobazepam, a prescription benzodiazepine.[19] Both treatments had equal benefits.

Statistically significant benefits were seen in a trial of 40 patients with mild anxiety.[20] Individuals were randomized to placebo or valerian at 100 mg 3 times per day for 21 days.

A combination product of valerian and passionflower was compared to a serious drug, chlorpromazine (Thorazine).[21] Individuals with affective disorders were given either a valerian 100 mg plus passionflower 6.5 mg product or a 40 mg/day of the drug for a total of 6 weeks. Increases in alpha and theta-waves were seen in both groups but observed for only the first 2 weeks in the herbal group versus the full 6 weeks in the drug group. While it is not clear how the association of changes in these EEG findings correlate with clinical outcomes, it is interesting and deserves further attention. Both depression and anxiety measures did improve in both groups.

Another combination study utilized 100 mg of St. John's wort and 50 mg of valerian root and compared this to diazepam (Valium) in individuals with moderate to severe anxiety.[22] One capsule twice per day was given of the combination product for 1 week and then two capsules twice per day for 1 week, or 2 mg twice per day of diazepam for 1 week and then 4 mg twice per day for one week. Surprisingly, a very good response was reported by 54% of those in the herbal combination protocol versus only 16% in the diazepam group.

ADVERSE EFFECTS/CAUTIONS/CONTRAINDICATIONS

Just as with any herb or ingredient, a known allergy or hypersensitivity warrants caution or avoidance. In the two systematic reviews, no allergic reactions were reported. Valerian can cause headaches, and the opposite of the desired effects, also known as a paradoxical reaction (hyperness and agitation) in a minority of individuals. A "hangover" effect has been reported in some individuals who take valerian.[23] Mild temporary stomach upset such as nausea and vomiting can be reported by few individuals, although very large doses of valerian could slow down the intestinal motility. There has been some concern about hepatotoxicity of valerian although this has only been suspected in multi-ingredient preparations that have included valerian.[24]

It is considered appropriate to use valerian cautiously in individuals with known liver dysfunction/disease as well as used cautiously if other sedating agents are being used because of the potential for an additive effect.

Valerian is not recommended in pregnancy and breast feeding due to concerns about the valepotriates and in vitro cytotoxic and mutagenic effects.[25,26] However, no teratogenic effects have been reported in cases of pregnant women with valerian intoxication.[27]

ADULT DOSING

Valerian products range from teas to dried powdered roots, to aqueous and/or ethanolic extracts to standardized extracts. Doses that have been studied range from 400 mg to 900 mg of aqueous or aqueous-ethanolic extract before bed. A common dose in several trails used 600 mg daily, taken one hour before bed. Tea is a historical use of the herb, with 1.5 to 3 gm of the root steep in 150 mL of water. However, not only is this a very bitter/strong and challenging tasting tea, it has not been studied in controlled trials. There are no clear dosing effects for anxiety, but 100 mg of an extract 1 to 3 times daily can be considered.

Standardized extracts are often standardized to valerinic or valeric acid ranging from 0.3% to 0.8% in the valerinic acid products.

SUMMARY

Valerian has a long tradition in herbal medicine for its use in insomnia and anxiety. In modern research, it appears to have some affect in improving sleep quality and sleep latency, especially in those with true sleep disorders. It also enjoys a long history of use with some research confirmation for generalized anxiety. Valerian should be strongly considered as a monotherapy, but perhaps even more useful in combination with other natural plant and nutrient supplements.

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