Telemetry as a tool to measure effects of a valerian root extract and single constituents on sleep in mice

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Valeriana officinalis L. is a popular herbal treatment for mild sleep disorders. Clinical and nonclinical studies found contradictory results for valerian extracts and single constituents regarding the influence on sleep parameters. It was the aim of this study to investigate the sedative effects of a valerian root extract. Therefore, locomotor activity and core body temperature were recorded in male mice using radiotelemetry. A 70% ethanolic extract prepared from the roots of V. officinalis (s.l.) and some of its single constituents, valerenic acid, linarin, and apigenin, were tested for effects on locomotion and body temperature over 180 minutes after oral administration. The extract was tested in a dose range of 250-1000 mg/kg, and only a dose of 1000 mg/kg valerian extract showed a mild short-term sedative effect with reduced locomotor activity between 66-78 min minutes after administration. Paradoxically, an increased activity was observed after 150 minutes after gavage. A dose of 1 mg/kg valerenic acid produced an intermittent stimulation of activity. However, a mild short-term sedative effect was found for linarin at 12 mg/kg and apigenin at 1.5 mg/kg. Considering the cumulative locomotor activity over the observation period of 180min, it is concluded that neither the extract nor one of the compounds had considerable sedative effects. More precisely, the observed short-term changes in activity pattern indicate that valerian extract as well as the flavonoids linarin and apigenin are rather effective to reduce sleep latency than to act as a sleep-maintaining agent.
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