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SHORT COMMUNICATION

Kava and Valerian in the Treatment of Stress-induced Insomnia

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Kava and valerian are herbal remedies, claimed to have anxiolytic and sedative properties respectively, without dependence potential or any appreciable side-effects. In this pilot study, 24 patients suffering from stress-induced insomnia were treated for 6 weeks with kava 120 mg daily. This was followed by 2 weeks off treatment and then, 5 having dropped out, 19 received valerian 600 mg daily for another 6 weeks. Stress was measured in three areas: *social, personal* and *life-events*; insomnia in three areas also: *time to fall asleep, hours slept* and *waking mood*. Total stress severity was significantly relieved by both compounds ($p < 0.01$) with no significant differences between them; as was also insomnia ($p < 0.01$). The proportion of patients with no side-effects was 58% with each drug respectively and the 'commonest' effect was vivid dreams with valerian (16%), followed by dizziness with kava (12%). These compounds may be useful in the treatment of stress and insomnia but further studies are required to determine their relative roles for such indications.

Keywords: stress; insomnia; kava; valerian; anxiolytic; sedative.

INTRODUCTION

Kava (or Kava-kava) is an extract of the roots of the Polynesian plant *Piper methysticum* and is used in the South Pacific for its sedative, aphrodisiac and stimulatory effects, both recreationally and in religious ceremonies (Singh, 1992). It contains a number of active compounds, amongst which are the kava pyrones: kavain, dihydrokavain, methysticin, dihydromethysticin, yangonin and desmethoxyyangostin, but it is not known which may be responsible for any anxiolytic properties that it may possess (Hansel and Haas, 1984). There have been three double-blind trials against placebo and one against bromazepam and oxazepam, which are described in the book by Schulz *et al.* (1998). In all the placebo studies, kava was significantly better, with equivalent effects in the active comparator study.

Valerian is a time-honoured herbal remedy , derived from *Valeriana officinalis* (Schulz *et al.,* 1998) and noted as: 'a soother of nerves and an inducer of untroubled sleep, mild in effect but safe in use'. Lindahl and Lindwall (1998) treated 27 patients for two nights with valerian and showed it to be clinically superior to placebo. Schulz *et al.* (1998) reviewed a number of other studies, concluding that: 'valerian is not a suitable agent for the acute treatment of insomnia. Its essential value may lie in its ability to promote natural sleep after several weeks of use, with no risk of dependence or adverse health events'. This opinion would seem to be fortified by a sleep electroencephalographic study against placebo, undertaken by Donath *et al.* (1996/7), in which valerian significantly shortened sleep latency and the onset of short-wave sleep (SWS), with an increase in the duration of SWS and a reduction in rapid eye movement sleep (REM). However, in a further report from the same authors (2000), although confirming the SWS changes, found an increase in REM sleep with both valerian *and* placebo.

Individuals who are under stress, which may often be prolonged and difficult to cope with, frequently suffer from insomnia (Wheatley, 1998). Although benzodiazepines and cyclopyrrolones are often effective for this indication; inherent in their use is the fear of becoming dependent upon them. This has not been reported with either kava or valerian and side-effects are virtually non-existent with either (Schulz *et al.*, 1998). Thus they might be suitable remedies with which to treat stress-induced insomnia.

MEASURES AND METHODS

Subjects. The trial was undertaken by 24 outpatients suffering from stress-induced insomnia of varying duration and intensity. However, 5 patients did not complete the full trial period and so this report is concerned with 24 who took kava only and 19 who followed this with valerian. There were 9 males with a mean age of 43.7 years (range 23–65) and 15 females with a mean age of 44.6 years (range 30–65). The mean duration of symptoms for all cases was 14.6 years (SE $\pm$ 3.0) and patients taking other psychotropic drugs were excluded, as were any females of child-bearing potential not using adequate contraception methods or not having a positive pregnancy test. Those with symptoms of depressed mood were only included if these were mild and did not include suicidal ideation. After a full explanation of the trial, all patients signed a consent to take part form. All patients underwent a full

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physical examination, including vital signs (blood pressure and heart rate). Vital signs were repeated at each assessment.

Design. This was a crossover trial, so that all patients received both drugs for 6 weeks each, with an intervening washout period of 2 weeks without treatment. The trial was not double-blind and all patients received kava first. The daily dose of kava was 120 mg and that of valerian 600 mg. The standardized products of Lichtwer-Pharma UK Ltd were used throughout.

Visual analogue scales (VAS). These were used to record the severity of stress (as perceived by the patient) and the degree of sleep disturbance, in three areas each, respectively. The dimensions measured were taken from the *Wheatley Stress Profile*, a validated instrument for measuring the severity of stress in a number of relevant areas (Wheatley, 1990). On each VAS, the severity ranged from 0 = none to 100 = very severe.

Severity of stress. The three parameters are: *social, personal* and *life events. Social stress* includes: problems in everyday life, at work, at leisure and in social contacts. *Personal stress* involves relationships with others, emotional problems and illness both personal and in others. Stress due to *life-events* involves adverse happenings in the past, whether recent or distant, that are still remembered with distress.

Sleep disturbance. The three parameters measured are: *time to fall asleep, hours slept* and *mood on final waking*. The normal *time to fall asleep* is taken to be 30 min or less; whilst the severest grade is being awake all night. The normal number of hours slept is taken as 7+, whilst the maximum severity is no sleep all night. *Waking mood* is assessed as 'wonderful' to 'awful'.

Side-effects. These were elicited in response to a general question: 'did the tablets upset you in any way at all?', and severity rated by VAS.

Statistics. The paired *t*-test was used to assess pre-post differences between assessment points, *t*-test for between group differences and chi-square for side-effects.

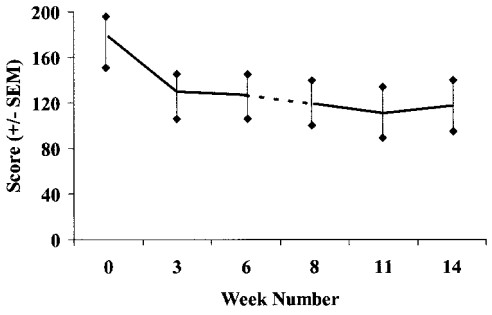

Figure 1. Changes in mean stress severity scores during the trial; 24 patients on kava followed by 19 on valerian. Week 0–6 kava, $p < 0.01$; week 6–8 no treatment, NS; week 8–14 valerian, NS; from week 0, $p < 0.01$.

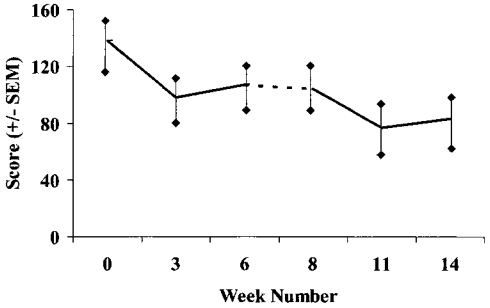

Figure 2. Changes in mean insomnia severity scores during the trial; 24 patients on kava followed by 19 on valerian week 0–6 kava, $p < 0.01$; week 6–8 no treatment, NS; week 8–14 valerian, $p < 0.01$.

RESULTS

Severity of stress

The total possible severity score on the stress questionnaire is 300 and the mean scores for all patients are shown in Fig. 1.

During the first 6 weeks on kava, the mean total score fell from 178.1 to 126.7 ($p < 0.01$, 95% CI: 18.3–84.2). During the next 2 weeks off treatment, there was virtually no change to 118.9 (NS) and to 117.1 after the second 6 weeks on valerian (NS).

Severity of insomnia

The total possible score on the sleep questionnaire is also 300 and the mean scores during the trial are shown in Fig. 2.

The initial mean total insomnia score was 138.0, falling to 107.1 after 6 weeks on kava ($p<0.05$, CI 2.2–62.6); 104.6 after 2 weeks no treatment (NS) and 83.1 after the final 6 weeks on valerian (NS). The final insomnia score also differed significantly from the initial score ($p<0.01$, CI 15.5–90.0).

Table 1. Side-effects recorded with kava and valerian during the trial

Side-effect	Kava (n = 24)	Valerian (n = 19)
None	14 (58%)	11 (58%)
Occuring in more than one patient		
Dry mouth	2	–
Gastric disturbance	2	–
Diarrhoea	2	–
Dizziness	3	–
Vivid dreams	–	3
Of relevance		
Craving for trial drug	1	–
Daytime drowsiness	1	1
Heavy sleep	–	1
Depression	1	1

Side-effects

The incidence and nature of side-effects recorded during the trial are shown in Table 1.

The proportions of patients experiencing no side-effects at all was the same with both drugs (58%). The "commonest" side-effect was vivid dreams with valerian (16%), followed by dizziness with kava (12%). No patient had to omit treatment because of side-effects. The mean severity of side effects was 46 (out of 100) with kava and 35 with valerian.

DISCUSSION

Both the impact of the patients' stress problems and the severity of the resulting insomnia were rapidly relieved by kava, with no subsequent significant differences on changing to either no treatment or valerian. This might indicate permanent relief on these two parameters or might suggest that the improvements achieved with kava were then maintained by valerian. Further studies will be undertaken to elucidate this further. Given the relatively small sample, the incidence of side-effects was low. However, a few comments are relevant. The occurrence of vivid dreams with valerian might reflect its known EEG effect of decreasing rapid eye movement (REM) sleep (Donath *et al.*, 1996/7). There are no published records of kava causing dependence, but one patient in this trial did express a desire to continue with it, when she was changed to valerian. However, this did not persist as she continued with the latter drug. The very low incidence of daytime drowsiness would suggest that, unlike synthetic hypnotics, this would not constitute any bar to its use for the induction and maintenance of sleep. Kava was undoubtedly effective in this study and would seem to have a number of desirable properties for use as a general hypnotic and anxiolyic. The role of valerian is less clear; it would appear to be not so effective in inducing sleep, but has beneficial effects on the sleep EEG, indicating that it may well improve the *quality* of sleep. Thus it might well be useful in chronic insomnia and in the elderly. Such conclusions would appear to be compatible with previous published reports. It must be admitted that this study is open to the criticism that it was neither double-blind nor placebo-controlled. However, the whole object of pilot studies is to point the way to future research of a scientific nature, in the most cost-effective way.

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