

EFFECTS OF SIBERIAN GINSENG (ELEUTHEROCOCCUS SENTICOSUS
MAXIM.) ON ELDERLY QUALITY OF LIFE: A RANDOMIZED CLINICAL TRIAL

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SUMMARY

An unspecific feeling of fatigue and asthenia often pushes elderly patients to require any form of help even from non medically trained people. Traditional Chinese medicine suggest that Siberian ginseng could act as a safe “adaptogenic” substance. Our aim was thus to test the effect of a middle term *Eleutherococcus senticosus* Maxim. (Araliaceae) administration on elderly, health related quality of life (HRQOL). 20 elderly hypertensive and digitalized volunteers (age ≥ 65 years) were randomized in a double-blind manner to *E. senticosus* dry extract 300 mg/day (n = 10) or placebo (n = 10) for 8 weeks. The short form-36 health survey version 2 (SF-36 v2), a validated general health status questionnaire, was used to assess HRQOL at baseline and at 4 and 8 weeks. There were no significant differences in baseline demographics and SF-36v2 scores between the groups. At each visit, controls of digitalisemia and blood pressure level were carried out. After 4 weeks of therapy, higher scores in social functioning (p = 0.017), mental health (p = 0.078), and the mental component summary (p = 0.02) scales were observed in patients randomized to *E. senticosus*; these differences did not persist to the 8-week time point. No adverse event has been observed in both groups of patients. No significant difference in both blood pressure control and digitalisemia was observed in both treatment groups. Subjects given *E. senticosus* (70%) were more likely to state that they received active therapy than subjects given placebo (20%; p < 0.05). In conclusion, *E. senticosus* safely improves some aspects of mental health and social functioning after 4 weeks of therapy, although these differences attenuate with continued use.

Keywords: *Eleutherococcus senticosus*, health related quality of life (HRQOL), digitalis therapy in elderly, blood pressure

INTRODUCTION

Traditional Chinese medicine suggests that different roots of the Araliaceae group have “adaptogenic” property. Among those, *Panax ginseng* is the most commonly sold “adaptogenic” herbal product in Western countries (MacLennan et al., 2002). However, it is not devoid of side effects, which are apparently not relevant for the young subjects, but can

be potentially significant for the elderly (Coon and Ernst, 2002). On the other hand, there is a growing interest of the scientific community for some ginseng properties which could be useful for the elderly people, like non-organ-specific cancer prevention (Yun, 2001), improvement of some erectile dysfunctions (Hong et al., 2002), memory improvement (Kennedy et al., 2001), and, last but not least, improvement of quality of life perception (Ellis and Reddy, 2001), being all these properties supported by a preliminary, but scientifically adequate research. The traditional Chinese medicine sources suggest to generally avoid the use of *Panax ginseng* in elderly subjects, prescribing other kind of roots of the *Araliaceae* group, as for instance *Eleutherococcus senticosus*. For this aim, we tested the efficacy and safety of an *E. senticosus* extract on hypertensive, digitalized elderly patients.

PATIENTS AND METHODS

Twenty hypertensive digitalized elderly volunteers (age ≥ 65 years) were randomized in a double-blind manner to *E. senticosus* (Rupr. and Maxim., *Araliaceae*) dry extract 300 mg/day (n = 10) or placebo (n = 10) for 8 weeks. The extract was kindly offered by the company (Centofiori S.r.l., Forli, Italy). The short form 36 health survey version 2 (SF-36v2), a validated general health status questionnaire, was used to assess health related quality of life (HRQOL) at baseline, then after 4 and 8 weeks. At the beginning of the study, all patients were under stabilized antihypertensive and digitalis treatment. A complete visit has been performed at each 4-week-period, with specific questions about the incidence of eventual adverse events. At any control visit, a control of digitemia was also required. Each patient was informed about the study protocol and signed an informed consent to participate. Sampled data have been inserted in an apposite database and statistically analyzed with the help of SPSS 8.0, version for Windows. HRQOL, blood pressure levels and digitemia between and within the groups was compared unpaired and paired Student's t-test, respectively. A $p < 0.05$ was considered statistically significant (Norman and Streiner, 2000).

RESULTS

There were no significant differences in baseline anthropometric data, demographics and SF-36v2 scores between the groups (Table I). After a 4-week-therapy, higher scores in social functioning (verum 53.9 ± 4.1 vs. placebo 48.2 ± 5.6 ; $p = 0.017$), mental health (verum 51.3 ± 6.7 vs. placebo 46.3 ± 6.4 ; $p = 0.078$), and the mental component summary (verum 50.4 ± 6.4 vs. placebo 43.4 ± 7.3 ; $p = 0.02$) scales were observed in patients

randomized to *E. senticosus* treatment. These differences did not persist until to the 8-week time point (Figure 1). No adverse events have been observed in either group of patients. No significant differences were observed in either the blood pressure control, or digitalisemia of the two groups. Subjects given *E. senticosus* (70%) were more likely to state that they received active therapy than subjects given placebo (20%; $p < 0.05$).

Table 1

BASELINE CHARACTERISTICS OF THE STUDIED SUBJECTS, mean \pm SD, or n

Parameter	Eleutherococcus	Placebo
Number of patients	15	15
Age (years)	71 \pm 3	71 \pm 4
Social functioning score	45.7 \pm 6.7	45.2 \pm 5.9
Mental health score	43.9 \pm 5.8	43.1 \pm 6.4
Mental component summary score	40.9 \pm 6.8	41.0 \pm 6.1
SBP (mmHg)	143 \pm 23	145 \pm 19
DBP (mmHg)	91 \pm 6	90 \pm 7
Diuretics used	8	6
β -blockers	5	4
Calcium antagonists	4	5
ACE inhibitors	3	4
Sartans	1	2
Digitalis	15	15

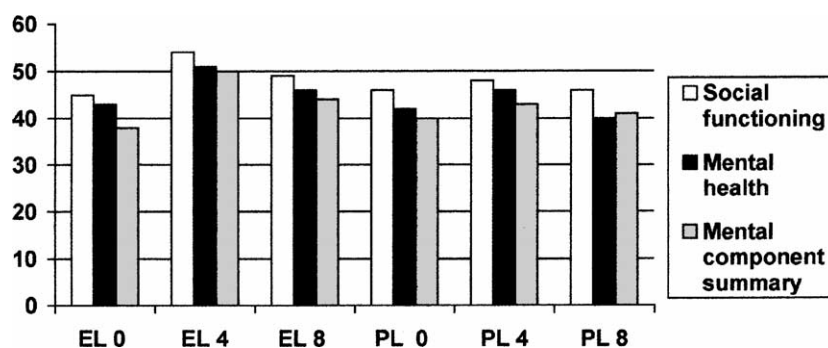


Figure 1. Self-reported SF-36v2 scores in treatment group (EL) and placebo group (PL) at baseline (0) after four (4) and eight (8) weeks of treatment, respectively.

DISCUSSION AND CONCLUSION

The definition of an adaptogen first proposed by Soviet scientists in the late 1950s, namely that an adaptogen is any substance that exerts effects on both sick and healthy individuals by 'correcting' any dysfunction without producing unwanted side effects, was used as a point of departure. Recently, special attention was paid to the reported pharmacological effects of the 'adaptogen-containing plant' *E. senticosus*, referred to by some as 'Siberian ginseng', and to its secondary chemical composition (Davydov and Krikorian, 2000).

The chemistry of the secondary compounds of *Eleutherococcus* isolated thus far and their pharmacological effects support the hypothesis that a part of the reported beneficial effects of adaptogens derive from their capacity to exert protective and/or inhibitory action against free radicals (Bol'shakova et al., 1997). An inventory of the secondary substances contained in *Eleutherococcus* discloses a potential for a wide range of activities reported from work on cultured cell lines, small laboratory animals and human subjects. Six compounds show various levels of activity as antioxidants (Bol'shakova et al., 1997), 4 show anticancer action, 3 show hypocholesterolemic activity, 3 show immuno-stimulatory effects (Szolomicki et al., 2000; Steinmann et al., 2001), 1 has choleric activity and 1 has the ability to decrease/moderate insulin levels, 1 has activity as a radioprotectant, 1 shows anti-inflammatory and anti-pyretic activities, and yet another 1 has shown antibacterial activity. Some of the compounds show more than one pharmacological effects and some show similar effects although they belong to different chemical classes (Davydov and Krikorian, 2000).

Our studies demonstrated that *E. senticosus* improves self-reported quality of life in elderly, without affecting their blood pressure control, in agreement with previous results obtained in young healthy adults (Asano et al., 1986). Contrarily to what was observed in a previously published case report (McRae, 1996), digoxin blood levels were not influenced, the effects may be caused by some interference with the digoxin dosage (Dasgupta et al., 2003).

E. senticosus improves aspects of mental health and social functioning after 4 weeks of therapy, although these differences are attenuated with continued use.

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