Red ginseng for treating erectile dysfunction: a systematic review

Jung DJ, Lee MS, Shin BC, Lee YC, Ernst E

CRD summary
This review investigated the effectiveness of red ginseng for treatment of erectile dysfunction. The authors concluded that the evidence was suggestive of effectiveness of red ginseng in treatment of erectile dysfunction, but the number and quality of trials were too low to draw firm conclusions. This study appeared to be generally well-conducted and the authors' cautious conclusions should be reliable.

Authors' objectives
To investigate the effectiveness of red ginseng for treatment of erectile dysfunction.

Searching
Twenty databases (MEDLINE, AMED, British Nursing Index, CINHAL, EMBASE, PsycINFO, The Cochrane Library and six Korean, four Chinese and three Japanese databases) were searched from inception to January 2008 without language restrictions. Search terms were reported. The authors' departmental files and relevant journals and references or relevant articles were searched.

Study selection
Randomised controlled trials (RCTs) of patients with any type of erectile dysfunction that were treated with any type of red ginseng were eligible for inclusion if they reported clinical outcomes. Studies that compared different forms of ginseng were excluded. The included studies were of men aged 24 to 70 years old with psychogenic erectile dysfunction, vasculogenic impotence or mixed erectile dysfunction. The range of duration of erectile dysfunction was one year to 30 years. Treatment duration ranged from four to 12 weeks. Doses of red ginseng ranged from 600mg to 1000mg three times daily. The outcome measures used were International Index of Erectile Function, Watts sexual function questionnaire, global efficacy question and author-designed questionnaires.

The authors stated neither how studies were selected nor how many reviewers performed the study selection.

Assessment of study quality
Methodological quality was assessed using the Jadad criteria (randomisation, blinding, allocation concealment, withdrawals and dropouts to give a quality score out of 5). Allocation concealment was assessed using the Cochrane classification.

It appeared that study quality was assessed by at least two reviewers. Disagreements were resolved by discussion and referral to a third reviewer if necessary.

Data extraction
Response rates (defined as successful improvement of sexual function) were extracted for all study arms in order to calculate risk ratio (RR) weighted by sample size and corresponding 95% confidence intervals (CIs) calculated using the response rates for red ginseng (successful improvement of sexual function) as a basis. Standard mean differences (SMDs) and 95% CIs were also calculated for total scores of sexual function.

It appeared that data were extracted by at least two reviewers.

Methods of synthesis
If statistical heterogeneity was not excessive, risk ratios and standard mean differences were pooled using a random-effects model. Statistical heterogeneity was assessed using the $T^2$, $X^2$ and $I^2$ tests. The authors also appeared to have performed subgroup analysis by erectile dysfunction type and sensitivity analysis by type of meta-analytic model (fixed and random).
Results of the review
Seven RCTs were included (n=363). Jadad scores were 1 for three RCTs, 2 for two RCTs, 3 for one RCT and 5 for one RCT.

Red ginseng was associated with a significantly better response rate (improvement of erectile function) than placebo in all erectile dysfunction patients (RR 2.40, 95% CI 1.65 to 3.51, p<0.0001; n=349) (sensitivity analyses showed similar results) and psychogenic erectile dysfunction (RR 2.05, 95% CI 1.33 to 3.16, p=0.001; n=135). All four trials that evaluated sexual function reported positive effects of red ginseng on sexual function. Three studies with available data showed that red ginseng was associated with better sexual function than placebo (SMD 0.79, 95% CI 0.46 to 1.12, p<0.00001; n=151). No statistically significant heterogeneity was indicated.

Authors' conclusions
The evidence was suggestive of effectiveness of red ginseng in treatment of erectile dysfunction, but the number and quality of RCTs were too low to draw firm conclusions.

CRD commentary
The research question was supported by inclusion criteria for participants, intervention and study design and outcomes. Studies in all languages were sought, which decreased the possibility of language bias. Publication bias was a possibility as no attempts to identify unpublished studies were reported. The limitations of using only published data were discussed in the report. Validity assessment was performed by two reviewers, which reduced the risk of bias and error; it was not clear whether similar steps were taken for study selection. Validity of included studies was assessed using established criteria and taken into consideration. Pooling appeared to be appropriate and statistical and clinical heterogeneity was assessed. This appeared to be a generally well-conducted study and the authors' cautious conclusions should be reliable.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that more high-quality studies were needed to establish whether red ginseng had a place in the treatment of erectile dysfunction.

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