

Liquorice 7% versus selenium sulfide 1% shampoos in the treatment of dandruff: a clinical trial

Iran J Dermatol 2012; 15: 144-145

Dear Editor,

Dandruff is a common inflammatory condition affecting more than half of the population. Many products are used to treat dandruff. Selenium-sulfide as an anti-malassezia, keratolytic and cytostatic agent and liquorice, extracted from *glycyrrhiza glabra*, with anti-yeast activities are known to be antidandruff¹⁻³. We conducted a placebo controlled-randomized clinical trial to compare antidandruff activity of liquorice 7% shampoo, selenium-sulfide 1% shampoo and a placebo. Study participants were randomly selected from patients who referred to our dermatology clinic and those diagnosed with dandruff in our screening program held in 10 Shiraz high schools. The study was approved by the committee of medical ethics. Active study groups included patients who used liquorice 7% shampoo in one group and those who used selenium-sulfide 1% shampoo in the other group. After discontinuing any other topical preparation or shampoo for two weeks prior and during the study, patients were asked to wash their hair twice weekly with the given shampoo. Data regarding the severity of dandruff, scalp inflammation, pruritus, hair loss and also eye irritation before and after treatment were obtained with a questionnaire. The severity of dandruff was evaluated with Kligman method⁴. Scalp inflammation and pruritus were described as mild, moderate and severe clinically and through asking the patients, respectively. Hair loss was graded as mild (100-150/day), moderate (150-200/day), and severe (more than 200/day) before and after therapy. *Pityrosporum.ovale* density was calculated by a microbiologist, using the mean yeast count in 4 microscopic fields of methylene blue-stained smear obtained from the most dandruff affected scalp areas.

A total of 72 patients (60 male, 12 female) with a mean age of 19 (14-70 years) for the liquorice 7% shampoo, a total of 68 patients (68 male, 4

female) with a mean age of 17 (14-65 years) for the selenium-sulfide 1% shampoo and a total of 63 patients (63 male, 0 female) with a mean age of 16 (14-32 years) for the placebo group completed the study.

Dandruff Severity Score (DSS) decreased from 2.6 to 2.2 after 4 weeks (15% decrease) in the liquorice 7% shampoo group and a 37% decrease was achieved (from 2.7 to 1.7) in the selenium-sulfide 1% group. DSS decreased by 19% (from 2.6 to 2.1) in the placebo group (P-value <0.05). The three shampoos significantly decreased dandruff severity with the best result for selenium-sulfide 1%. Scalp inflammation declined in 5.7%, 15.4% and 19.4% of patients who used liquorice 7%, selenium-sulfide 1% and placebo shampoo, respectively. None of the shampoos could significantly decrease scalp inflammation (P-value > 0.05). Pruritus decreased in 37.5% and 60% of the participants who used liquorice and selenium-sulfide shampoo, respectively. About 25% of the patients who used placebo reported decreased pruritus. So, both liquorice and selenium-sulfide but not the placebo significantly decreased pruritus. Moreover, 33.8%, 18.2%, and 16.7% of patients who used liquorice, selenium-sulfide and placebo shampoo reported decreased hair loss showing that only liquorice shampoo might decrease hair loss. Liquorice shampoo, comparing to the other two, caused the most eye irritation (P-value <0.05). Data revealed no significant decrease in the density of *P.ovale* in all the three groups (P-value>0.05).

Our study showed no significant difference between placebo and liquorice in decreasing dandruff severity. Regular hair wash can reduce dandruff. None of them had anti-inflammatory effects. Liquorice and selenium-sulfide had a significant antipruritic activity. Liquorice might decrease hair loss which has not been reported to date and needs more investigations by future studies. Liquorice shampoo caused the most eye irritation. In conclusion, liquorice 7% shampoo

cannot be used as a suitable anti-dandruff shampoo. On the other hand, further in-depth investigations are required regarding its anti-hair loss and antipruritic activity.

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Conflict of interest: None to declare

Received: 20 July 2011

Accepted: 27 November 2011

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