

## 4. Metabolism and Endocrine Diseases

### Reference

Kim SJ, Kim HJ, Ko BP, et al. Effect of *Ephedra Sinica* and *Evodia Rutaecarpa* on resting metabolic rate in obese premenopausal women during low-calorie diet: A randomized controlled clinical trial. *Hanbang-Biman-Hakhojei (Journal of Korean Oriental Association for Study of Obesity)* 2004; 4(1): 45–54 (in Korean with English abstract).

### 1. Objectives

To evaluate the therapeutic effect of *Ephedra Sinica* (麻黃) and *Evodia Rutaecarpa* (吳茱萸) on obesity in women.

### 2. Design

Double-blinded randomized controlled trial (DB-RCT).

### 3. Setting

One Oriental hospital (Bundang-Cha Oriental Hospital), Republic of Korea.

### 4. Participants

Ninety premenopausal women of childbearing age over 21 years old (body mass index  $\geq 25$  kg/m<sup>2</sup>)

### 5. Intervention

Arm 1: Placebo group (n=30). Treatment was a 1200-kcal per day diet and placebo for 8 weeks.

Arm 2: *Ephedra Sinica* (麻黃) group (n=30). Treatment was a 1200-kcal per day diet and 6 g of *Ephedra Sinica* for 8 weeks (twice a day).

Arm 3: *Evodia Rutaecarpa* (吳茱萸) group (n=30). Treatment was a 1200-kcal per day diet and 6 g of *Evodia Rutaecarpa* for 8 weeks (twice a day).

Fifty patients (16 in Arm1; 14 in Arm2; 20 in Arm 3) dropped out.

### 6. Main outcome measures

- 1) Resting metabolic rate measured by portable indirect calorimetry.
- 2) Body weight, percent body fat, body fat mass, and waist-to-hip ratio measured using a body composition analyzer.

### 7. Main results

- 1) The resting metabolic rate increased significantly in the *Ephedra Sinica* group (average score, 90.0) after 4 weeks as compared with the placebo group (average score, -82.8), but not in the *Evodia Rutaecarpa* group.
- 2) Body weight decreased in the *Ephedra Sinica* group after 4 weeks (average 2.6) and 8 weeks (average 3.63) compared with the placebo group but was similar in the *Evodia Rutaecarpa* and placebo groups.
- 3) The percent body fat was significantly decreased in the *Ephedra Sinica* group after 4 and 8 weeks, but not in the *Evodia Rutaecarpa* and placebo groups.

### 8. Conclusions

*Ephedra Sinica* treatment significantly increases the resting metabolic rate after 4 weeks and decreases body weight and percent body fat after 4 and 8 weeks.

### 9. Safety assessment in the article

Hypersensitivity and other adverse reactions were observed in 8 of 30 women who dropped out.

### 10. Abstractor's comments

This clinical trial evaluated the effect of *Ephedra Sinica* and *Evodia Rutaecarpa* on resting metabolic rate and body composition of obese women of childbearing age. Treatment was found to increase resting metabolic rate and decrease percent body fat. The design was randomized, placebo controlled, and double-blind, so the reliability of the results was high and the results could have implications for the treatment of obese women.

### 11. Abstractor

Lee BC, 28 May 2010.