

## 9. Cardiovascular Diseases

### Reference

Nakamura H, Nakamura T, Nakagawa S et al. Efficacy of goreisan in treatment of orthostatic hypotension in patients with diabetes mellitus\*. *Diabetes Frontier* 2000; 11: 561-3 (in Japanese). Ichushi Web ID: 2001041016 [MOL](#), [MOL-Lib](#)

#### 1. Objectives

To evaluate the safety and efficacy of goreisan (五苓散) in the treatment of orthostatic hypotension in patients with diabetes mellitus.

#### 2. Design

Randomized controlled trial (crossover design) (RCT- crossover).

#### 3. Setting

One internal medicine clinic, Japan.

#### 4. Participants

Ten patients with diabetes mellitus (type 1, 2; type 2, 8) associated with orthostatic hypotension diagnosed according to McDowell's criteria.

#### 5. Intervention

Since allocation to these treatment arms is not described, the treatment arms are described in terms of treatment regimen.

Arm 1: Kanebo Goreisan (五苓散) Extract Tablets (EKT-17) 18 tablets/day, for 1 month, n=10.

Arm 2: placebo 18 tablets/day, for 1 month, n=10.

#### 6. Main outcome measures

Body weight, subjective symptoms, and response to orthostatic challenge (change in blood pressure, plasma adrenaline noradrenaline, and aldosterone concentrations, and plasma renin activity) were evaluated at baseline, and 1 and 2 months after the start of treatment; adverse drug reactions (ADRs) were checked during the study.

#### 7. Main results

There was no difference in body weight between the goreisan and placebo groups. The subjective symptom of orthostatic dizziness improved in 9 of 10 patients in the goreisan group, whereas no change was reported in all 10 subjects in the placebo group. Results of orthostatic challenge: Before standing, no significant difference was found in blood pressure between at baseline and after administration of goreisan or placebo. After standing, systolic and diastolic pressures increased significantly in the goreisan group ( $P<0.05$ ), while no significant change was observed in the placebo group. There were no changes in the concentration of adrenaline, noradrenaline, or aldosterone, nor in plasma renin activity at orthostatic challenge after administration of goreisan or placebo.

#### 8. Conclusions

In diabetic patients with orthostatic hypotension, goreisan improves subjective symptoms and normalized the decrease in blood pressure on standing.

#### 9. From Kampo medicine perspective

None.

#### 10. Safety assessment in the article

There were no observed adverse drug reactions.

#### 11. Abstractor's comments

General indications for goreisan are edema, nausea, vomiting, dizziness in subjects with thirst and decreased urine output. Authors applied this to diabetic orthostatic hypotension, which is neuropathic and intractable/ resistant to therapies in most cases. Modern medicine can prevent the decline in blood pressure on standing; however, problems such as adverse increase in supine blood pressure remain. In contrast, goreisan causes no increase in supine blood pressure, suggesting this Kampo formulation as an ideal therapeutic agent for orthostatic hypotension in diabetic patients. It is very meaningful that this randomized controlled trial demonstrated that goreisan has efficacy.

It is thought that further investigation with increased case numbers and multicenter trials will improve the reliability of data.

#### 12. Abstractor and date

Namiki T, 15 June 2007, 1 April 2008, 1 June 2010, 31 December 2013.