

10. Respiratory Diseases (including influenza and rhinitis)**References**

Shinozuka N, Tatsumi K, Nakamura A, et al. Evaluation of systemic inflammation and utility of hochuekkito administration in subjects with COPD*. *Kosei Rodosho Kagaku Kenkyu Kenkyu Hojokin: Nanchisei Shikkan Kokufuku Kenkyu Jigyo Kokyufuzen ni Kansuru Chosa Kenkyu, Heisei 18 Nendo Buntan Kenkyu Hokokusho* [Ministry of Health, Labour and Welfare, Science Research Grant, The Intractable Disease Treatment Research Project Research on Respiratory Failure, Working-group Research report fiscal year 2006] 2007:94-9 (in Japanese).

Shinozuka N, Tatsumi K, et al. A traditional herbal medicine hochuekkito improves systemic inflammation in patients with COPD. *American Journal of Respiratory and Critical Care Medicine* 2007; 175: A638 CENTRAL ID: CN-00651806

Shinozuka N, Tatsumi K, Nakamura A, et al. The traditional herbal medicine hochuekkito improves systemic inflammation in patients with chronic obstructive pulmonary disease. *Journal of the American Geriatrics Society* 2007; 55: 313-4. CENTRAL ID: CN-00578499, Pubmed ID: 17302677

Fukuchi Y, Tatsumi K. Utility evaluation of Kampo in the treatment of chronic obstructive pulmonary disease*. *Kosei Rodosho Kagaku Kenkyu Hojokin Choju Kagaku Sogo Kenkyu Jigyo: Mansei Heisokusei Shikkan ni Taisuru Kampochiryo no Yuyosei Hyoka ni Kansuru Kenkyu, Heisei 18 Nendo Sokatsu Kenkyusho Hokokusho* (Ministry of Health, Labour and Welfare, Science Research Grant: Study on Evaluation of Usefulness of Kampo Treatment for Chronic Obstructive Pulmonary Disease, Summary Report Fiscal Year 2006) 2007: 1-31 (in Japanese).

Tatsumi K, Shinozuka N, Nakayama K, et al. Hochuekkito improves systemic inflammation and nutritional status in elderly patients with chronic obstructive pulmonary disease. *The American Geriatrics Society* 2009; 57: 169-70

1. Objectives

To investigate the effect of hochuekkito (補中益気湯) on systemic inflammation in subjects with chronic obstructive pulmonary disease (COPD).

2. Design

Randomized controlled trial (envelope method) (RCT-envelope).

3. Setting

Twelve university hospitals and thirteen hospitals, Japan.

4. Participants

Clinically stable patients who fulfilled the diagnostic criteria of the Japan Respiratory Society Guidelines for COPD, n=71.

5. Intervention

Assessments were done after 6 months of treatment.

Arm 1: conventional treatments with Tsumura Hochuekkito (補中益気湯) Extract Granules, 2.5 g, b.i.d. or t.i.d., n=34.

Arm 2: control: continued conventional treatments, n=37.

6. Main outcome measures

Subjective symptoms: SGRQ (St. George's Respiratory Questionnaire), symptoms related to *ki-kyo*, incidence of common cold (assessed using patients' diaries), and frequency of exacerbations (defined on the basis of Anthonisen's criteria and requirement for systemic administration of steroids).

Objective measurements: body mass index (BMI), change in body weight, respiratory function, blood gas analysis, markers of nutrition status (prealbumin, leptin, and adiponectin), and markers of inflammation (high sensitivity C-reactive protein [hsCRP], TNF- α , and IL-6).

7. Main results

SGRQ subjective symptom score was significantly improved in Arm 1. Also, incidence of the common cold and frequency of exacerbation were significantly less in Arm 1 than in Arm 2. There was no significant change in body weight in both arms during 6 months of observation. Prealbumin, a marker of nutritional status, increased significantly only in Arm 1. Leptin level remained unchanged after administration of hochuekkito. The markers of systemic inflammation (hsCRP, TNF- α , and IL-6) were negatively correlated with severity of COPD (represented by FEV₁% predicted). In Arm 1, hsCRP and TNF- α decreased significantly, but IL-6 remained unchanged. Concentration of adiponectin, secreted by adipocytes and suggested to be involved in the development of arteriosclerosis, was negatively correlated with BMI and significantly increased after treatment with hochuekkito.

8. Conclusions

Administration of hochuekkito improves systemic inflammation and nutritional status in subjects with COPD, and decreases COPD exacerbation and incidence of the common cold.

9. From Kampo medicine perspective

Among the symptoms related to *qikyō* (気虚, qi deficiency), physical lassitude, morale, fatigability, susceptibility to the common cold, and appetite improved.

10. Safety assessment in the article

There were no safety issues.

11. Abstractor's comments

Fukuchi et al. (2007) is an interim report of the findings of Shinozuka et al. (2007) and Shinozuka et al. *American Journal of Respiratory and Critical Care Medicine* (2007), while Shinozuka et al. *Journal of the American Geriatrics Society* (2007) presents only the objective outcomes of that interim report. Tatsumi et al. (2009) and Fukuchi et al. (2007) have the same intention. Airflow restriction is considered a prognostic factor that is independent of weight loss in COPD, and recognition of COPD as a systemic inflammatory disease is increasing. If numerous papers are to follow from the succession of RCTs, then each should include the clinical trial registration number to increase understanding of their interrelationships.

12. Abstractor and date

Fujisawa M, 22 February 2009, 1 June 2010, 12 October 2011, 31 December 2013.