



Prescriptions of traditional Chinese medicine, western medicine, and integrated Chinese–Western medicine for allergic rhinitis under the National Health Insurance in Taiwan



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ABSTRACT

Ethnopharmacological relevance: Allergic rhinitis has long been a worldwide health problem with a global growth trend. The use of traditional Chinese medicines alone or integrated Chinese–Western medicines for its treatment is quite common in Taiwan. Respiratory diseases account for the majority of outpatient traditional Chinese medicine treatment, while allergic rhinitis accounts for the majority of respiratory diseases. We hereby conduct a comparative analysis between traditional Chinese medicine treatments and western medicine treatments for allergic rhinitis in Taiwan. The results of the analysis on the prescription difference of traditional Chinese medicine and western medicine treatments would be helpful to clinical guide and health policy decision making of ethnopharmacological therapy.

Materials and methods: Patients diagnosed as allergic rhinitis with diagnostic code 470–478 (ICD-9-CM) were selected as subjects from 2009–2010 National Health Insurance Research Database based on the claim data from the nationwide National Health Insurance in Taiwan. This retrospective study used Chi-Square test to test the effects of gender and age on visit of traditional Chinese medicine, western medicine, and integrated Chinese–Western medicine treatments.

Results: A total of 45,804 patients diagnosed as allergic rhinitis with ICD-9-CM 470–478 were identified from 2009–2010 NHIRD. There were 36,874 subjects for western medicine treatment alone, 5829 subjects for traditional Chinese medicine treatment alone, and 3101 subjects for integrated Chinese–Western medicine treatment. Female patients were more than male in three treatments. 0–9 years children had the highest visit frequency in western medicine and integrated Chinese–Western medicine groups, while 10–19 years young-age rank the highest in traditional Chinese medicine group. The Chi-square test of independence showed that the effects of gender and age on visit of three treatments were significant.

Conclusions: The prescription drugs of western medicine treatment alone were almost for relieving the symptoms of allergic rhinitis. That leads to the little difference between 2009 and 2010. The same phenomenon occurs in integrated Chinese–Western medicine. However, the prescription drugs of traditional Chinese medicine treatment vary considerably. Multiple-composition medicine been replaced by single-composition medicine implied that syndrome differentiation and treatment were used and the synergistic effects of multiple-composition medicine were no longer suitable for the most patients of 2010.

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1. Introduction

Following the change of lifestyle, the global asthma population has been increased by 45% yearly. It is estimated that about three hundred million people are suffering from asthma. Allergic rhinitis

is considered one of the dangerous factors of asthma, because it very often coexists with asthma in the same patient according to the findings of epidemiological research (Matthew et al., 2003). Allergic rhinitis has long been a global health problem. As previous researches showed, the incidence of respiratory allergies is about 20–30% with a global growth trend associated with the quick changes of industrial progress, modern lifestyle, and ecological environment (Bezerra et al., 2014). Moreover, allergic rhinitis has the highest prevalence of all allergic respiratory diseases and

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affects over 12 million people (20%) of the UK population and 400 million people (5.6%) worldwide (Horizon Scanning Centre, 2013). As for the incidence of allergic rhinitis in Taiwan, the prevalence is approximately 20–30% and increases annually (Yang and Chen, 2012).

The clinical definition of allergic rhinitis is a nasal symptom induced by IgE antibody mediated inflammatory reaction by exposing to allergens. Even if allergic rhinitis is generally not a severe disease, it will interfere with patients' quality of life and performance of work and learning. Modern medical researches have developed a considerable knowledge of allergic rhinitis and have found efficacious treatments for the disease. In addition to avoiding exposure to allergens, controlling diet and environmental, western medicine treatments include medical treatment, hyposensitization treatment, and surgical treatment (Lee, 1985). As for traditional Chinese medicine treatment, syndrome differentiation and treatment have been proven efficacious against allergic rhinitis. In addition, previous researches show that integrated Chinese–Western medicine treatments for allergic rhinitis are effective measures without obvious side effect (Chen et al., 2007). Some researches even suggest that the performance of integrated Chinese–Western medicine treatments is better than western medicine treatments (Xue et al., 2006; Guo and Liu, 2013). According to the study on 1996–2001 National Health Insurance Research Database (NHIRD), which is based on the claim data of National Health Insurance (NHI) in Taiwan, respiratory diseases account for the majority of outpatient traditional Chinese medicine treatment (Chen et al., 2007).

Taiwanese have always believed traditional Chinese medicines have slower effects but more safety, while western medicines have quicker effects but more side effects (Chen et al., 1999; Kang et al., 1994; Long et al., 2001). Accordingly, patients with chronic or recurrent diseases frequently seek not only western medicine treatment but also traditional Chinese medicine treatment or integrated Chinese–Western medicine treatment. The dual-track treatment has become prevalent ever since Taiwan's NHI included reimbursement of traditional Chinese medicines in 1995. Taiwan's NHI initiated by central government in 1995 is compulsory for the whole population to have an equal chance to join and to meet the demand of health. As a preceding research on the habit of medicine consumption of outpatients of medical centers in Taiwan showed, 72.7% patients accepted both traditional Chinese medicine treatments and western medicine treatments (Chen et al., 2008a, 2008b). However, the study conducted research by questionnaire survey and did not evaluate the influence factors and difference of medications prescriptions of traditional Chinese medicine treatments and western medicine treatments. Furthermore, many researches have conducted epidemiology study or utilization of traditional Chinese medicine by exploring NHIRD in recent years (Chen et al., 2007, 2008a, 2008b; Lai et al., 2008). Unfortunately, these study did not simultaneously compare traditional Chinese medicine treatments alone, western medicine treatments alone, and integrated Chinese–Western medicine treatments. This study would like to explore the three treatments for allergic rhinitis to know if there exist specific treatment guidelines for prescribed medications or inclination for personal therapy.

2. Materials and methods

On the basis of the claim data from Taiwan's NHI, the National Health Research Institutes (NHRI) constructed NHIRD in 1998 to support academic and non-profit organizations to undertake medical researches. This study used allergic rhinitis patients of 2009–2010 NHIRD as research sample. We classified allergic

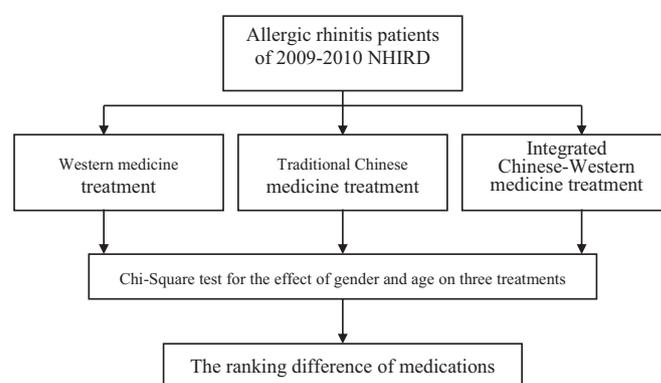


Fig. 1. The research scheme.

rhinitis patients into three groups: traditional Chinese medicine treatment alone, western medicine treatment alone, and integrated Chinese–Western medicine treatment. This study analyzed the distinctions of demographic characteristic and medical use patterns among the three groups. Because Taiwan's National Health Insurance only reimburses extract Chinese medicines, prescription patterns analysis of this study excluded raw medicinal substances and other herb medicines.

Patients diagnosed as allergic rhinitis with diagnostic code 470–478 (ICD-9-CM) were selected as subjects. The statistical analysis software SAS 9.13 was employed for data analysis. Chi-Square test was utilized to test the effects of gender and age on visit of traditional Chinese medicine treatment, western medicine treatment, and integrated Chinese–Western medicine treatment. Finally, medications prescribed by the three treatments were ranked and compared. The research scheme of this study is shown as Fig. 1.

3. Results and discussion

3.1. Analysis of gender and age

A total of 45,804 patients diagnosed as allergic rhinitis with ICD-9-CM 470–478 were selected from 2009 to 2010 NHIRD. There were 36,874 subjects for western medicine treatment alone, 5829 subjects for traditional Chinese medicine treatment alone, and 3101 subjects for integrated Chinese–Western medicine treatment.

The average age of western medicine treatment group was 32.79 ± 21.77 , with 17,205 male (46.66%) and 19,669 female (53.34%). Among traditional Chinese medicine group, the average age was 30.15 ± 18.55 , with 2589 male (44.42%) and 3240 female (55.58%). As for integrated Chinese–Western medicine group, the average age was 26.90 ± 19.57 , with 1477 male (47.63%) and 1624 female (52.37%). A chi-square test of independence was performed to examine the effect of gender on treatments. The relation between these two variables was significant ($p=0.0024$) shown as Table 1.

The peak age of allergic rhinitis patients treated by western medicines was 0–9 years of age (19.08%), followed by 10–19 years of age (14.49%). The peak age of allergic rhinitis patients treated by traditional Chinese medicines was 10–19 years of age (21.74%), followed by 30–39 years of age (16.52%). The peak age of allergic rhinitis patients treated by integrated Chinese–Western medicines was 0–9 years of age (24.51%), followed by 10–19 years of age (21.22%). A chi-square test of independence was performed to examine the effect of age on treatments. The relation between these two variables was significant ($P < 0.0001$), shown as Table 2.

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