

Chinese Medicine Network Analysis: Exploration of Core Herbs on Diseases

Hsing-Yu Chen^{1,2*}

¹Division of Chinese Internal Medicine, Center for Traditional Chinese Medicine, Chang Gung Memorial Hospital, Taiwan

²Graduate Institute of Clinical Medical Sciences, Chang Gung University, Taiwan

³School of Traditional Chinese Medicine, College of Medicine, Chang Gung University, Taiwan

Submission: January 31, 2017; **Published:** November 10, 2017

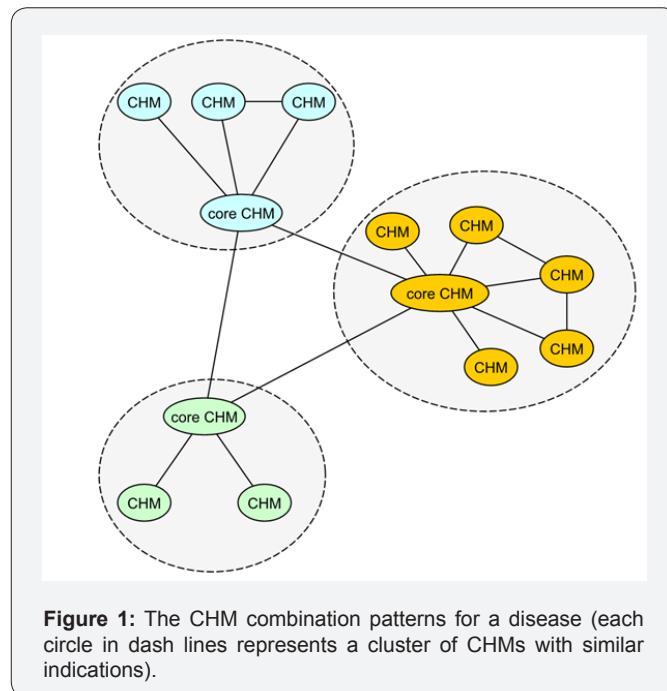
***Corresponding author:** Hsing-Yu Chen, Division of Chinese Internal Medicine, Center for Traditional Chinese Medicine, Chang Gung Memorial Hospital, Taoyuan, Taiwan, Email: b8705016@gmail.com

Conceptual Paper

Use of Chinese herbal medicine (CHM) is common in Asian countries as a complementary even alternative treatment to western medicine. However, the complicated composition of CHM may hinder further understanding the art of CHM treatment principle. Based on the traditional Chinese medicine (TCM) theory, TCM doctors usually combine several CHMs in one prescription to achieve the better effectiveness than using single herb by strengthening the therapeutic effects or decreasing side effects. In our previous studies analyzing prescriptions used for menstrual disorders, allergic disorders and breast cancer, 5-6 kinds of CHMs were used in one prescription in average [1-7]. Since the CHMs are often chosen by combinations, it is difficult to understand the treatment principles or choose research candidates by simply ranking the CHMs with single use. This fact may contribute to high heterogeneity in choosing study candidates, whether for clinical trials or *in vitro* or *in vivo* studies. To solve this problem, we apply network analysis to routinely collected nationwide CHM prescription database in Taiwan to explore the core CHM treatments to a specific disease. Since the database covered nearly all inhabitants in Taiwan, the results of analysis could be regarded as a sort of consensus among TCM doctors in Taiwan.

The detailed data processing protocol was described in our previous reports [8]. By applying association rule mining and social network analysis, it is possible to discover commonly used CHMs in combinations in clinical practice and further explore the core CHMs by analyzing and graphically demonstrating the combination patterns of CHMs. Since TCM doctors usually prescribe combination of CHMs for major TCM syndrome, or “zheng” in Chinese, of a disease and then the other combinations of CHMs for minor TCM syndromes if necessary. The core CHMs for a disease could be found with characteristics of one CHM is commonly used and frequently combined with other

CHMs (Figure 1). Moreover, the different clusters of CHMs represented different indications of TCM syndromes. Through the demonstration of CHMs prescribed for a disease, the researchers could clearly realize the treatment principles on TCM perspectives, and further easily choose the most appropriate CHMs.



Currently, we try to apply the core CHMs found for urticaria and diabetic nephropathy to clinical trials and bench studies respectively. By using the results as preliminary references, we can conduct studies provide evidences adherent to clinical practice.

References

1. Yeh Yuan-Chieh, Chen Hsing-Yu, Sien-Hung Y, Lin YH, Chiu JH, et al. (2014) Hedyotis diffusa combined with Scutellaria barbata are the core treatment of Chinese herbal medicine used for breast cancer patients: a population-based study. *Evid Based Complement Alternat Med*, doi: 10.1155/2014/202378.
2. Chen HY, Lin YH, Thien PF, Chang SC, Chen YC, et al. (2013) Identifying core herbal treatments for children with asthma: implication from a chinese herbal medicine database in taiwan. *Evid Based Complement Alternat Med* 2013: 125943.
3. Lin YH, Chen YC, Hu S, Chen HY, Chen JL, et al. (2013) Identifying core herbal treatments for urticaria using Taiwan's nationwide prescription database. *J Ethnopharmacol* 148(2): 556-562.
4. Chen HY, Huang BS, Lin YH, , Su IH, Yang SH, et al. (2014) Identifying Chinese herbal medicine for premenstrual syndrome: implications from a nationwide database. *BMC Complement Altern Med* 14(1): 206.
5. Chen HY, Lin YH, Su IH, Chen YC, Yang SH, et al. (2014) Investigation on Chinese herbal medicine for primary dysmenorrhea: implication from a nationwide prescription database in Taiwan. *Complement Ther Med* 22(1): 116-125.
6. Chen Y-C, Lin Y-H, Hu S, Chen H-Y (2016) Characteristics of traditional Chinese medicine users and prescription analysis for pediatric atopic dermatitis: a population-based study. *BMC Complement Altern Med* 16: 173.
7. Chen HY, Lin YH, Hu S, Yang SH, Chen JL, et al. (2015) Identifying chinese herbal medicine network for eczema: implications from a nationwide prescription database. *Evid Based Complement Alternat Med* 2015: 347164.
8. Chen HY, Lin YH, Huang JW, Chen YC (2015) Chinese herbal medicine network and core treatments for allergic skin diseases: Implications from a nationwide database. *J Ethnopharmacol* 168: 260-267.



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/JCMAH.2017.03.555623](https://doi.org/10.19080/JCMAH.2017.03.555623)

Your next submission with Juniper Publishers will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats
(Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission
<https://juniperpublishers.com/online-submission.php>