Full Length Research Paper

Complex system entropy method of Professor Kong Guangyi's experience in the treatment of menstrual disease

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This study used data mining technology to study Professor Kong Guangyi's medication experience for the treatment of menstrual period. 612 treatments of the medical records of the menstrual period of the patients of Professor Kong Guangyi were collected and data mining technology was used to study his prescribed drug. For single herb, frequency statistical method was used; in association between paired drugs, improved mutual information was used, and the association between multi-herbs, complex system entropy clustering technology was used. There were 30 kinds of drugs that the professor frequently uses, more than 100 times. His commonly used drugs have 24 tastes, with correlation coefficients of above 0.05, and there were 28 commonly used core drug combinations. Research results corresponded with clinical reality. The study has great value by inheriting the essence of the medication of the professor in treating menstruation, and is an important significant guide and practical value for establishing accurate and reliable old Chinese medicine experience mining mode.

Key words: Complex system entropy method, Kong Guangyi, menstrual disease.

INTRODUCTION

The old Chinese medicine, a perennial accumulated drug experience, is a precious wealth of Chinese traditional medicine. Its in-depth study is based on the new method (Jianxin et al., 2011b) of medication essence, inherited from known development of Chinese medicine theory of great significance. This study uses a complex system entropy clustering technique, data mining technology and Professor Kong Guangyi's medication to treat menstrual disease and to apply its drug law.

is the exception that occurs before, after or during the menstrual cycle, which includes the amount, the color, and the quality of the menses. The obvious symptoms of the disease that break the chief card, a state of change in the period that is closely related to the menstrual card are characterized by the following: early menstruation, late menstruation, irregular menstruation, menorrhagia after a few months, uterine bleeding, intermenstrual bleeding, amenorrhea, dysmenorrhea, evidence of menopause. The chief card refers to a state of change in the period, where there is no necessary correlation between the disease and syndrome, which includes: line fever, line headache, line body pain, line vertigo, row edema, line port Mi, diarrhea line breast tenderness, abnormal market blog, line rubella, line spit bleed at the nose etc.

DATA METHODOLOGY

Inclusion criteria

The study aims to analyze the clinical diagnostic criteria for menstrual patients, based on gender, and no age limit. Menopathy
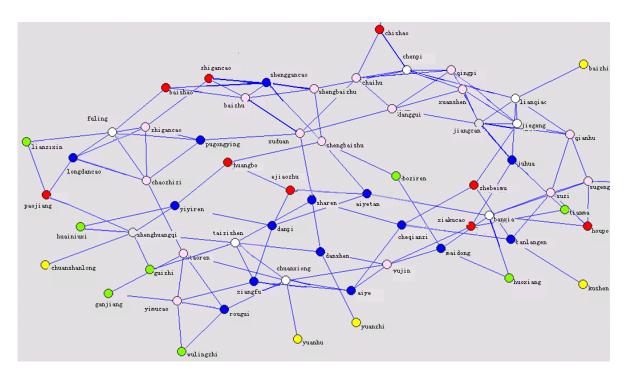
Clinical data

Menstrual information was collected from the medical records of Professor Kong Guangyi Guo Yi Tang in Beijing University of Chinese Medicine Clinic in March 2008 to October 2011. Medical history, symptoms, signs, differentiation, prescriptions etc. are from Professor Kong Guangyi which he personally taught on. A total of 612 copies of medical records were taken.

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Figure 1. Multi-herb complex association between the use of core technology example of complex system entropy clustering method.

Database creation

Organize the collection of menstrual records on top of the disease and chief card. The disease and permit classification, medical symptoms, signs, diagnosis, syndromes and other information should be in accordance with the standard textbooks. With traditional Chinese medicine prescription, summarize and clarify its category, function, sex, using the Chinese name prevalent in the current 21st century planning materials. Use visual Fox Pro6.0 development platform for the preparation of the Chinese operation interface, 612 copies of medical records, clinical data entry, Epidata database platform, the formation of medical records database, all the information involved in the disease name, card type, symptoms and medication; and use the values 0 or 1 binary for variable (dichotomous variable).

Data modeling and mining

For the application of mathematical modeling on the menstrual database, mining of multi-facet and multi-dimensional was used; single herbs, frequency statistical method was used; for drugs on association between, improved mutual information was used; for association between multi-herbs, complex system entropy clustering technology was used. Mathematical calculation was used to filter out the larger Chinese medicine core portfolio. It was measured by calculating each of the two drugs between the correlation coefficient as the correlation between the two to two drugs. But in the two drug situations, there were at the same time positive correlation and negative correlation. Positive correlation and negative correlation can be separated to get correlation coefficient. One cannot distinguish between positive and negative correlation among variables. So to improve the correlation coefficient, calculate

the correlation coefficient of each drug between the variables and other variables. For each variable, it should be based on the size of the relationship of the coefficient associated with other variables. The first M variable with the largest coefficient is called "close the variable". Hutchison N is the full number of variables. If two variables are each other's intimate variables, then these two variables are positively correlated. The three variables between any two variables are related. These three variables together form a pile, and so on; until they form a convergence, that is cannot go down to the pile to add any element. Based on the above algorithm on the data platform programming, and operation processing, relevant combination can be drawn, as a basis for further experiments. Its core idea is shown in Figure 1 (Jianxin et al., 2007, 2010).

RESULTS

Table 1 shows Professor Kong Guangyi's treatment of menstrual disease and commonly used drugs. By analyzing 24 commonly used drugs right, the correlation coefficient is above 0.05, with specific drugs shown in Table 2.

Professor Kong Guangyi's treatment of menstrual commonly used drugs core portfolio

Complex system entropy clustering method was used to obtain the drug core portfolio of 34 specific drugs (Table 3).

Table 1. Professor Kong Guangyi treatment of Menopathy single herb use frequency.

No.	Drug name	Frequency used	No.	Drug name	Frequency used
1	Huangqin	603	16	Rougui	281
2	Chishao	602	17	Danshen	268
3	Chaihu	593	18	Fuling	267
4	Chenpi	576	19	Pugongying	260
5	Xuduan	568	20	Yujin	251
6	Qingpi	554	21	Sugeng	249
7	Danggui	553	22	Chuanxiong	226
8	Shenggancao	491	23	Shengbaizhu	225
9	Maidong	467	24	Suzi	219
10	Banxia	457	25	Juhua	194
11	Sharen	415	26	Taizishen	187
12	Chaobaizhu	367	27	Xiangfu	150
13	Baishao	326	28	Chaozhizi	143
14	Longdanc	323	29	Danpi	126
15	Aiye	296	30	Banlangen	120

Table 2. Professor Kong Guangyi treatment of menstrual commonly used drugs.

No.	Drug name	Association coefficient	No.	Drug name	Association coefficient
1	Sugeng-Suzi	0.704158874	13	Fuling-Caozhizi	0.07060867
2	Baishao-Sengbaizhu	0.362867556	14	Chaihu-Qngpi	0.070077452
3	Baishao-Chaobaizu	0.335051521	15	Aiyetan-Eiaozhu	0.068263062
4	Chenpi-Qingpi	0.193686522	16	Chaozhizi-Zhiqiao	0.064417064
5	Baishao-Zhigancao	0.11791974	17	Jiegeng-Qianhu	0.062997084
6	Baishao-Sengganc	0.11416841	18	Chaobaizhu-Shenggancao	0.062830454
7	Chuanxiong-Sougui	0.09947249	19	Rougui-Taoren	0.061781466
8	Chaobaizhu-Zhigancao	0.097249688	20	Chaihu-Danggui	0.060024073
9	Jiangcan-Jiegeng	0.085941031	21	Juhua-Lianqiao	0.05367356
10	Shengbaizhu-Shengganc	0.078629034	22	Chuanshanlong-Shenghuangqi	0.053291499
11	Banxia-Maidong	0.077886082	23	Danshen-Sharen	0.051148606
12	Jiangcan-Lianqiao	0.074448153	24	Chaihu-Chenpi	0.050911209

DISCUSSION

Put a higher frequency of drug into the liver and spleen meridians by using the statistical frequency of single herbs. Pay attention to regulation of liver and spleen, in line with Professor Kong Guangyi's menstrual treatment. Menstrual patients with common syndrome of liver and spleen disharmony should use the Chong and Ren loss secretary. Professor Kong Guangyi's method is used to disperse stagnated liver qi, relieve qi stagnation, nourish blood, soothe liver, and reconcile liver and spleen. Commonly bupleurum, peony root, white peony root, angelica, astragalus, blue, orange peel, atractylodes, poria, licorice, etc., are the basic prescriptions modified according to Xiaogong et al. (2011). Bupleurum is used

for liver qi stagnation, so that qi turns up; the skullcap helps Chaihushugan stagnation; peony root is used for yin, nourishes the liver, and leads to its convergence; Angelica nourishes the blood, liver and body, Yin and Yang; poria, atractylodes, dried tangerine peel, licorice ship spleen and stomach without Yongzhi, making the blood chemistry active. Thus, the statistical and clinical practices are consistent. Some studies showed that Jiang-Zhi-Ning may have some effects on this function; however, it needs further studies (Jianxin et al., 2012b, 2011a).

In drug use, Suzi and the Soviet Union stems have the highest correlation. Clinical professors in the whole make the best use of Perilla stem for spleen and stomach. Professor Kong said that tone the stomach and not fill it,

Table 3. Professor Kong Guangyi treatment of menstrual commonly used drugs core portfolio.

Number	Core drug combinations	Number	Core drug combinations
1	Banxia-Houpo-Sugeng-Suzi	15	Chenpi-Qingpi-Xuanshen
2	Fuling-Longdancao-Chaozhizi-Zhiqiao	16	Chuanxiong-Rougui-Taoren
3	FulingPugongying-Zhizi-Zhiqiao	17	Danshen-Sharen-Taizishen
4	Jiangcan-Jiegeng-Lianqiao-Qianhu	18	Danggui-Jiangcan-Xuanshen
5	Aiye-Chuanxiong-Yujin	19	Danggui-Qingpi-Xuanshen
6	Aiyetan-Ejiaozhu-Danpi	20	Ganjiang-Taoren-Yimucao
7	Banxia-Huoxiang-Maidong	21	Guizhi-Shenghuangq-Taizishen
8	Baishao-Shengbaizhu-Shenggancao	22	Jiangcan-Jiegeng-Xuanshen
9	Baishao-Chaobaizhu-Zhigancao	23	Jiangcan-Juhua-Lianqiao
10	Banlangen-Zhebeimu-Cheqianzi	24	Jiegeng-Qingpi-Xuanshen
11	Chaihu-Chenpi-Chishao	25	Juhua-Tianma-Xiakucao
12	Chaihu-Chenpi-Qingpi	26	Qianhu-Sugeng-Suzi
13	Chaihu-Danggui-Qingpi	27	Rougui-Taoren-Yimucao
14	Chaihu-Danggui-Xuduan	28	Rougui-Wulingzhi-Yimucao

and let spleen be the focus, the hub of the lift. Professor Kong regulates menstruation with hi green tangerine peel, white peony and use of white surgery; white peony is used for hepatic; orange peel, Atractylodes Rupi for regulating the liver and spleen. In statistics, the two drugs are associated with a higher degree of drugs in line with clinical practice.

Drug use core portfolio include Pinellia and Magnolia, the Soviet Union stems, the Soviet Union sub-Spleen and Stomach qi core drugs; Bupleurum, Citrus Peel and Bupleurum, dried tangerine peel, red peony, liver qi stagnation and liver conditioning by the core drugs. It is a common pathological state in the liver qi stagnation in the menstrual cycle. Besides the impact of menstruation, this work also focuses on stomach, loss of transportation in the spleen, emptying of sea of blood, so Professor Kong attached particular importance to focusing on the stomach. Based on the core drug combinations reaction, Professor Kong's medication treatment is all about menstrual regularity and dialectical thinking.

Based on the complexity of the system entropy method as an unsupervised pattern discovery algorithm, it can be self-organized into vast amounts of data to extract the most informative combination of this method, which is particularly suitable for a high degree of discrete types of data. At present, this method has been the National Key Basic Research Development Program (1973 Program), "syndrome specification and its related diseases, and prescription of basic research"; and 'based on the liver blood controlling dispersion of dirt," a project carried out by Chenghe et al. (2012) has been successfully applied to the clinical symptoms of stroke and coronary heart disease and other disease; as well as syndrome factor extraction studies (Jie et al., 2008). Another research showed that the way of taking drug may have effects (Jianxin et al., 2012a). Chinese medicine prescription

data are discrete, non-linear and have mixed characteristics; and therefore very suitable for the analysis of prescription of drug law, based on the complexity of the system entropy method. The results of this study show that the statistics in line with clinical application further confirmed that the application of entropy clustering method to study the old clinical experience has practical significance.

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