

Application Law of Zhongjing prescription Jujubae Fructus Compatibility

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Abstract: Objective: The compatibility law of Jujubae fructus in zhongjing prescription is analyzed to provide reference for clinical medication and new prescription research and development. Methods: Based on the data of zhongjingfang which contains Chinese Jujubae fructus in treatise on febrile diseases and synopsis of the golden chamber, the compatibility rules of Chinese Jujubae fructus in zhongjingfang are statistically processed and analyzed by using Excel 2013 and SPSS Clementine 12.0 statistical software. Results: The treatise on febrile diseases contains 40 prescriptions of zhongjing containing Jujubae fructus, while the synopsis of the golden chamber contains 44 prescriptions of zhongjing containing Jujubae fructus. Among all zhongjing prescriptions included in the inclusion criteria, the top five Chinese medicine herbs with the highest cumulative frequency are Jujubae fructus (67 times, 100%), Glycyrrhizae radix et rhizoma (59 times, 88.06%), Zingiberis rhizoma recens (54 times, 80.60%), Cinnamomi ramulus (38 times, 56.72%), and Paeoniae radix alba (28 times, 41.79%). Based on the association rule analysis of zhongjing prescription with Chinese date, it is found that there are 13 pairs of combinations with the highest association intensity, and 11 pairs of combinations with the highest association intensity in the treatment of taiyang syndrome. Conclusion: Through the analysis of zhongjing prescription containing Jujubae fructus, the law of the compatibility of zhongjing Jujubae fructus with Zingiberis rhizoma recens and Glycyrrhizae radix et rhizoma is found to have a strong correlation with Jujubae fructus, and the combination of Jujubae fructus with different Chinese medicine is mostly used in taiyang disease syndrome and jueyin disease syndrome, which has a better therapeutic effect on diseases such as vomiting and retching, lung impotence, lung carbuncle cough and upper qi. Mathematical statistics is an important tool for the analysis of the law of Chinese medicine drug use, which provides modern research direction for guiding clinical drug use.

Jujubae fructus is the dried mature fruit of the Rhamnaceae plant. Chemical components^[1] include proteins, amino acids, polysaccharides and vitamins. Jujube polysaccharides have many physiological activities, such as anti-oxidation^[2-4], lowering blood lipid^[5], protecting liver^[3] and immune regulation^[6-10]. Based on this, modern information technology is used to analyze the compatibility rule and method of zhongjing prescription's application of Jujubae fructus, and to explore the scope of disease treatment, drug use rule and potential drug combination of zhongjing prescription's treatment of Jujubae fructus, in order to explore new drug pair combination and indications of disease, and give full play to the medicinal value of Jujubae fructus.

1 Materials and methods

1.1 Zhongjing prescription screening

Zhongjing prescription, who contains "Jujubae fructus" in treatise on febrile diseases and synopsis of golden chamber, is summarized and sorted out. In treatise on febrile diseases, there are 40 prescriptions of zhongjing fang containing Jujubae fructus, and 44 prescriptions of zhongjing fang containing Jujubae fructus in synopsis of golden chamber.

1.2 Data processing

The zhongjingfang in treatise on febrile diseases and synopsis of golden chamber involving jujube are arranged and the diseases treated by zhongjingfang are classified.

1.3 Statistical processing

All Chinese medicines in zhongjingfang that meet the standards are input into Excel 2013 one by one to establish the database, classify and sort the Chinese medicines in the database, and use Excel 2013 and SPSS Clementine 12.0 for statistical processing and network display.

2 Results

2.1 Application characteristics of zhongjing prescription containing dates

A total of 65 Chinese medicines are obtained by summing up all the selected Chinese medicines in zhongjing recipe, with a cumulative occurrence frequency of 433 times. Among them, there are 15 kinds of Chinese medicine with frequency ≥ 5 , and 347 times. Among all zhongjing prescriptions included in the inclusion criteria, the top five Chinese medicine herbs with the highest cumulative frequency are Jujubae fructus (67 times, 100%), Glycyrrhizae radix et rhizoma (59 times, 88.06%), Zingiberis rhizoma recens (54 times, 80.60%), Cinnamomi ramulus (38 times, 56.72%), and Paeoniae radix alba (28 times, 41.79%). The occurrence frequency of Chinese medicine ≥ 5 is shown in table 1.

Table 1 Application characteristics of Chinese medicine containing Jujubae fructus Zhongjing prescription (frequency ≥ 5)

Drug name	Frequency	Proportion(%)	Drug name	Frequency	Proportion(%)
Jujubae fructus	67	100.00	Scutellariae radix	12	17.91
Glycyrrhizae radix et rhizoma	59	88.06	Aconm lateralis radix praeparaia	8	11.94
Zingiberis rhizoma recens	54	80.60	Armeniacae semen amarum	7	10.45
Cinnamomi ramulus	38	56.72	Bupleuri radix	7	10.45
Paeoniae radix alba	28	41.79	Atractylodis macrocephalae rhizoma	6	8.96
Ginseng radix et rhizoma	18	26.87	Zingiberis rhizoma	6	8.96
Pinelliae rhizoma	17	25.37	Gypsum fibrosum	6	8.96
Ephedrae herba	14	20.90			

2.2 Chinese medicinal amount containing Zhongjing prescription of Jujubae fructus

Table 2 The dosage of Jujubae fructus in Zhongjing Recipe

Dosage	Frequency	Proportion(%)
12	40	59.70
10	7	10.45
15	6	8.96
4	3	4.48
6	3	4.48
25	2	2.99
30	2	2.99
1	1	1.49
5	1	1.49
7	1	1.49
100	1	1.49

2.3 Including Jujubae fructus of Zhongjing prescription for disease

According to "treatise on febrile diseases", 40 cases contain zhongjingfang of Chinese date and 44 cases contain zhongjingfang of Chinese date in synopsis of golden chamber ", the functions and indications of zhongjingfang are statistically analyzed. As shown in figure 1、figure 2.

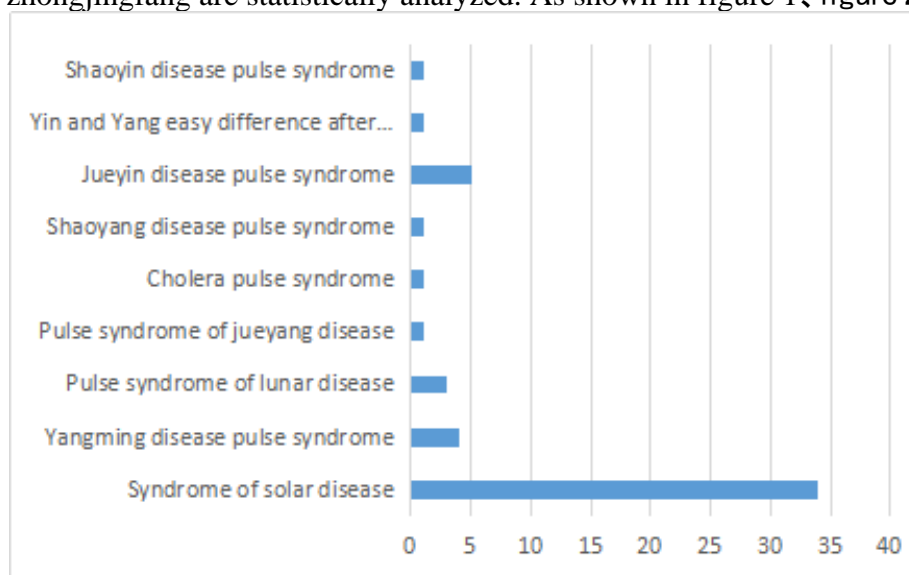


Fig. 1 "Treatise on febrile diseases" contains the Jujubae fructus of zhongjing prescription

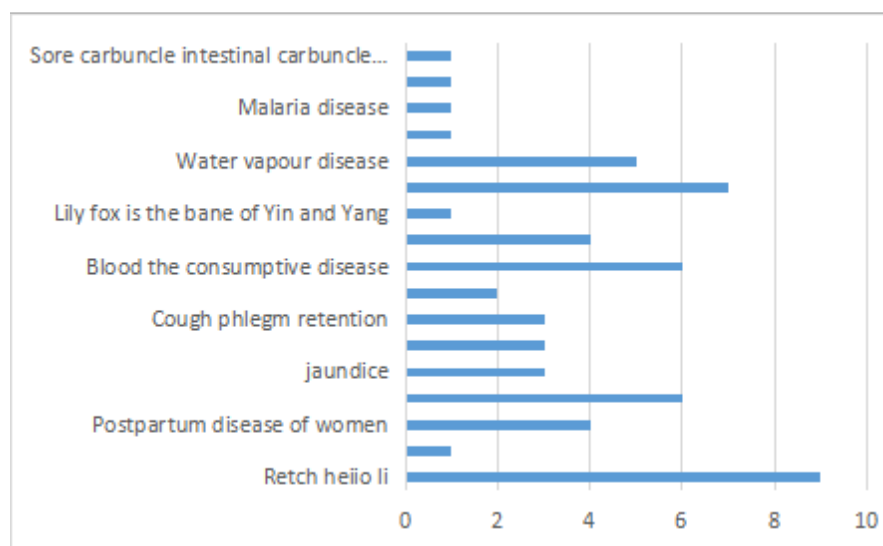


Fig. 2The synopsis of golden chamber contains the Jujubae fructus of zhongjing prescription

2.4 Contains the core drug pair of Jujubae fructus Zhongjing prescription

Use SPSS Clementine 12.0 statistical software to analyze association rules, use the network to display the associations between Chinese medicines, and use Apriori modeling to further dig out the compatibility relationship between Chinese medicines. Set the support level to 35%, the confidence level to 95%. The number of items is 5, and the conditions of ≥ 1 are lifted to discover potential Chinese medicine combinations in commonly used Zhongjing prescriptions, and a total of 13 core drug pair combinations are obtained. The improvement of all Chinese medicine combinations is greater than 1, indicating that these Chinese medicine combinations are statistically significant. The associated "networked display" is shown in Figure 3.

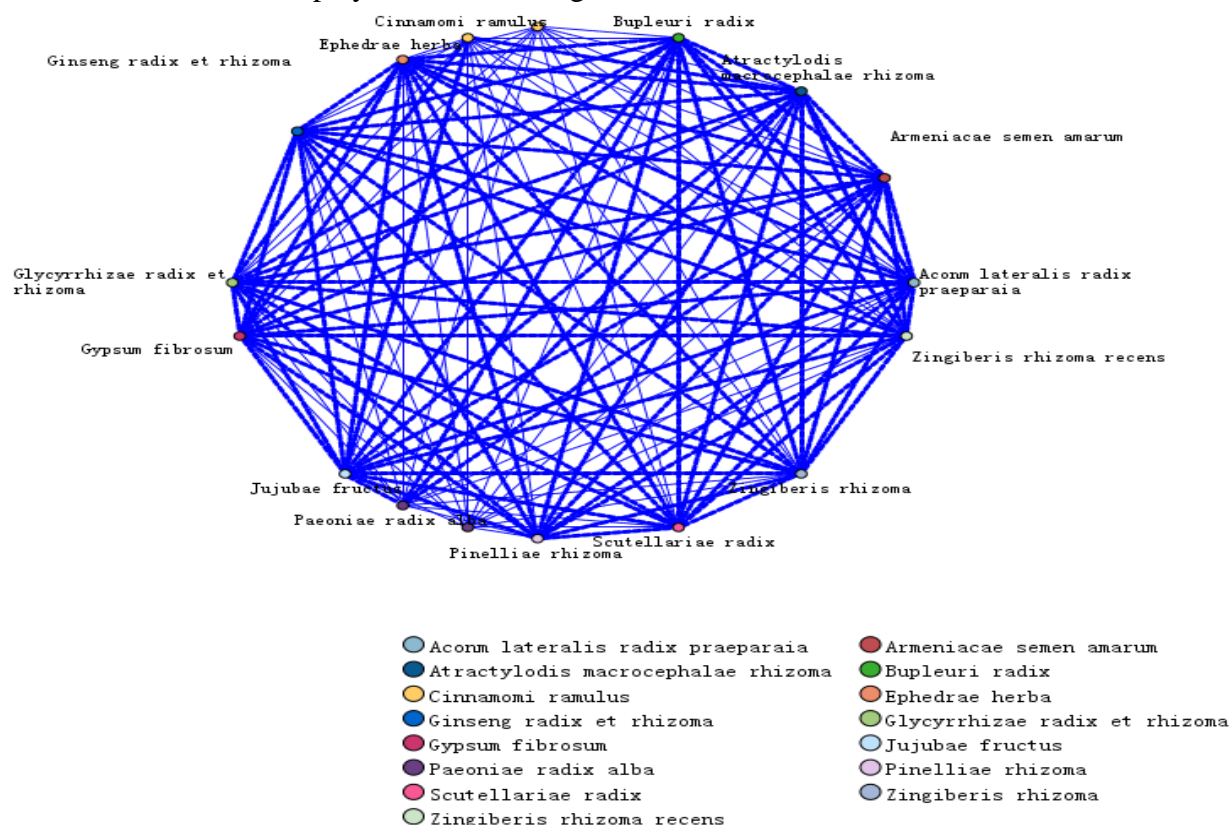


Fig. 3 Network display of Chinese medicine

Note: The thickness of the line indicates the degree of correlation between the two Chinese medicines.

2.5 Examples of analysis of medication laws for common dates

For the classification criteria of Chinese medicine diseases, among the common types of Chinese medicine disorders treated with Dazao Prescriptions, representative persons are selected for analysis. Therefore, the most commonly used ones are selected and analyzed for their respective medication laws.

2.5.1 Sun Disease

There are a total of 34 treatments for the sun disease in the prescriptions containing Jujubae fructus. SPSS Clementine 12.0 statistical software is used to analyze association rules. Networks are used to show the correlation between drugs. Apriori modeling is used to further explore the compatibility between drugs. The support is 40%, the confidence is 100%, the maximum number of antecedents is 10, and the conditions of ≥ 1 are explored to find potential drug combinations in common prescriptions, and a total of 11 core drug pair combinations are obtained. The improvement of all drug combinations is ≥ 1 , indicating that these drug combinations are statistically significant. See Figure 4.

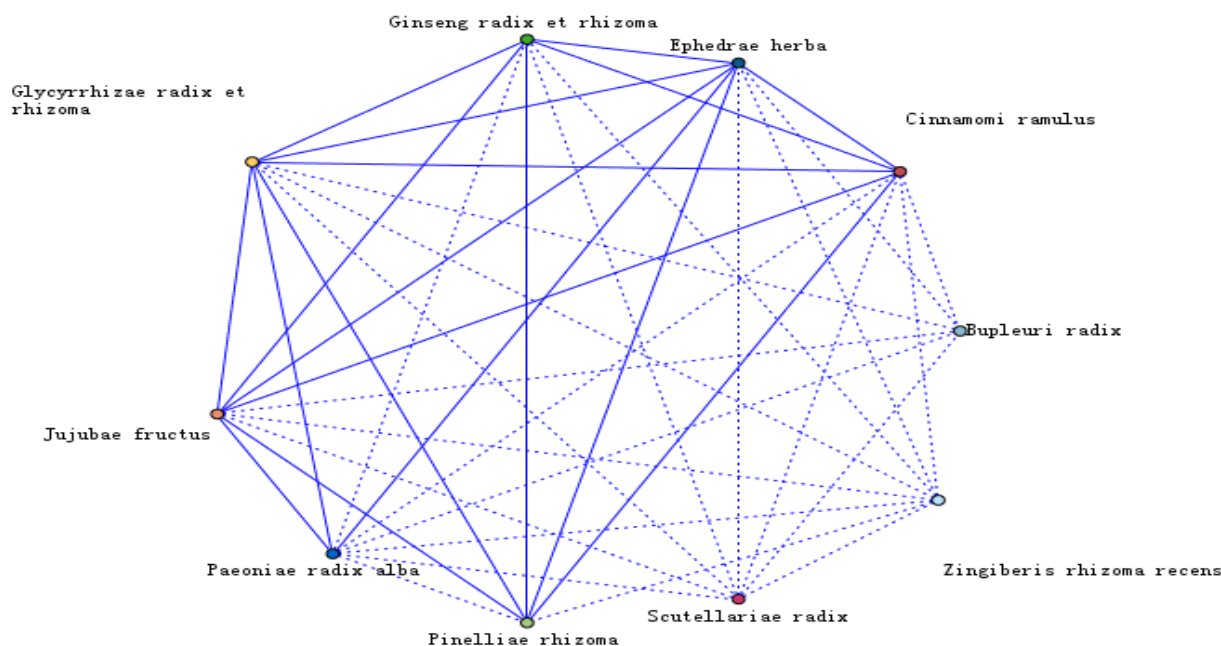


Fig. 4 Network display of Chinese medicine

Note: The thickness of the line indicates the degree of correlation between the two Chinese medicines.

3. Discussion

Zhong Jing prescriptions, the rigorous formula, flexible addition and subtraction, accurate curative effect, is the most representative and most widely recognized prescription, its treatment characteristics: yin and yang balance. It plays an irreplaceable role in today's Chinese medicine theory and clinical practice. Among all zhongjing prescriptions included in the inclusion criteria, the top five Chinese medicine herbs with the highest cumulative frequency are Jujubae fructus (67 times, 100%), Glycyrrhizae radix et rhizoma (59 times, 88.06%), Zingiberis rhizoma recens (54 times, 80.60%), Cinnamomi ramulus (38 times, 56.72%), and Paeoniae radix alba (28 times, 41.79%). By analyzing the association rules of Zhongjing prescriptions containing Jujubae fructus, 13 core combinations are obtained, and the amount of jujube is often 12. In Zhongjing prescriptions, Jujubae fructus is mostly used for sun disease pulse syndrome and jueyin disease pulse syndrome. Jujubae fructus combined with different Chinese medicines has good curative effects on vomiting, diarrhea, lungs, lungs, cough and qi.

The date of use of Jujubae fructus in Zhongjing prescription is very high, but it is not often used as a king medicine, but the synergistic effect on the whole prescription cannot be underestimated. In the jujube xiefei decoction, it is compatible with zongzi to enhance the effect of promoting blood circulation and removing blood stasis, and can relieve various lung injuries^[11]. Cinnamomi ramulus decoction is compatible with Zingiberis rhizoma recens to obtain Jujubae fructus's sweetness, Zingiberis rhizoma recens's warmth, and prevent it from going too far. It can reconcile Yingwei with the fluid of spleen and stomach^[12]. Jujubae fructus is compatible with Glycyrrhizae radix et rhizoma and Ginseng radix et rhizoma, tones the spleen and stomach, nourishes qi and blood, and is used to reinvigorate the veins, such as Huanglian decoction, Banxia Xiexin decoction, and Licorice Xiexin decoction. Danggui Sini Decoction^[13], combined with Angelicae sinensis radix and Paeoniae radix alba, replenishes blood and can prevent the dryness of Cinnamomi ramulus and Asari radix et rhizoma. Zhong Jing is used in ephedra-containing recipes^[14], and jujube and ginger are commonly used in joint ventures. To sum up, the role of Jujubae fructus: nourishing the spleen and replenishing qi; replenishing yin and ying; reconciling yingwei; nourishing the heart and spleen; nourishing qi and nourishing the stomach^[15].

In this paper, the statistics of Zhongjing prescription containing Jujubae fructus are summarized,

and its compatibility and application laws are initially analyzed. The Jujubae fructus exerts different curative effects through the compatibility of different Chinese medicines. It reflects the medication rules and compatibility characteristics of jujube for different diseases. "Different diseases with the same treatment" provides theoretical support, making Jujubae fructus more reasonable for clinical application, suggesting that mathematical statistics can provide new methods for studying potential common laws in different Chinese medicine combinations, and provide ideas for new prescription research. Check out "China Knowledge Net", there is less research on jujube zhongjing prescription, Jujubae fructus is mostly used as adjuvant, conjecture: Jujubae fructus as a tonic medicine, can it be increased when used in combination with other tonic medicines? The amount of Jujubae fructus reduces or replaces the use of other Chinese medicines to achieve the desired effect.

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