

A Study on the Pattern of Drug Administration in Patients with Postoperative Hand Trauma Treated with Herbal Fumigation based on Data Mining Analysis

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Abstract: ***Objective:** To analyze the dosing pattern of patients with postoperative hand trauma treated with traditional Chinese medicine topical fumigation based on the data mining method. **Methods:** Information retrieval of major domestic and foreign large databases such as know.com and pubmed was applied to the computer, and the retrieval time was limited to the period from the establishment of the database to Sep 1, 2022, to collect clinical literature related to Chinese medicine for the treatment of postoperative patients with hand trauma, and EXCEL 2018 software was applied to establish the database with the retrieval results, and frequency analysis, nature and flavor attribution analysis, and drug class analysis were performed. The spss statistics23.0 and SPSS statistics Modeler 18.0 software were applied to perform high-frequency drug clustering analysis and association rule analysis, respectively. **Results:** Among the traditional Chinese medicines for the treatment of postoperative hand trauma patients, the high-frequency Chinese medicines mainly included safflower, elongated tendon grass, transverse bone grass The results of the cluster analysis showed that six drug groups were available, with the most drugs for dispelling wind and dampness, activating blood circulation and relieving pain. The pair of Radix Rehmanniae and Radix Angelicae Sinensis had the highest support. **Conclusion:** The analysis of the pharmacological pattern of herbal fumigation treatment for postoperative hand trauma patients through data mining shows that the pathogenesis of postoperative hand trauma patients is qi stagnation, blood stasis and wind-damp paralysis. Their treatment should follow the therapeutic principles of dispelling wind and dampness, invigorating blood and removing blood stasis.*

Keywords: Data mining, Hand Injuries, Herbal fumigation, Postoperative, External treatment method, Medication pattern.

1. Introduction

Hand trauma is one of the common types of trauma, which is often accompanied by inflammation and soft tissue injury. In severe cases, tissue necrosis can occur, which may cause disability [1]. Surgical treatment is the main treatment [2]. Through the surgical treatment plan, the wound of the traumatic part can be treated and the wound healing is accelerated. However, it is generally believed that the operation can only ensure the anatomical structure of the affected limb is intact, and at the same time, as far as possible, the appearance of the affected limb is beautiful. For the symptoms of joint stiffness, pain and discomfort after operation, it has been difficult to solve and cure the problem of surgical treatment [3]. So, postoperative rehabilitation training and drug treatment is particularly important [4]. Rehabilitation training and conventional drug therapy can effectively improve the recovery of hand function after surgery, which is a common treatment strategy. But the rehabilitation treatment in the process of recovery, patients may not be able to endure the pain is not in the process of training, etc [5]. This may result in patients being unable to strictly follow the training program, resulting in suboptimal rehabilitation training outcomes, and may discourage patients from cooperating with treatment [6]. In recent years, fumigation and washing with traditional Chinese medicine has a significant effect on patients with hand trauma after surgery, which can accelerate the recovery of patients and reduce postoperative adverse reactions, and has been widely used. The purpose of this study is to analyze the traditional Chinese medicine (TCM) prescriptions of postoperative

patients with hand trauma by using data mining technology, and to explore the effectiveness of TCM for postoperative treatment of hand trauma. In order to provide some data reference for the clinical treatment of traditional Chinese medicine after hand trauma surgery.

2. Materials and Methods

2.1 Methods of Retrieval

Chinese database retrieval, ten thousand party, weipu database, and at the same time, foreign language database search Pubmed, retrieval time limited to from building library until September 1, 2022, Chinese to "hand trauma" and "after", "Chinese medicine" inscription retrieved, English with "Hand Injuries", "Postoperative Period" "Medicine, Chinese Traditional" inscription for retrieval. English subject headings follow the retrieval rules of the mesh glossary to ensure accurate search and improve the credibility of the search.

2.2 Inclusion Criteria

(1) the research way for clinical research, adopt the method of randomized controlled trials (2) clear hand trauma diagnosis [7] (3) is main treatment with traditional Chinese medicine fumigation (4) the amount of each prescription of traditional Chinese medicine (TCM), using time, usage and so on are specified; (5) If there were prescriptions added or changed according to the syndrome type, only the basic prescription would be recorded; (6) The results have definite diagnosis and decision criteria.

2.3 Exclusion Criteria

(1) The dosage and usage of traditional Chinese medicine prescriptions are not clearly given in the literature; (2) the literature does not study the treatment of postoperative patients with hand trauma with traditional Chinese medicine washing as the main research content, such as induration of soft tissue injury, chronic osteomyelitis of fingers, spontaneous tendon rupture of fingers, upper limb trauma, etc. (3) The research process is too short, the description is not clear, and the research method is not rigorous. (4) the clinical research literature, such as meeting summary, animal experiments, etc. (5) repeat of literature writers, prescription ingredients, cannot be calculated at multiple documents. (6) literature without traditional Chinese medicine fumigation and washing as the main treatment and (7) literature with unclear diagnosis of hand trauma.

2.4 Data Specification

The names of traditional Chinese medicine prescriptions in the aggregated data were standardized according to the Chinese Pharmacopoeia (2020 edition), such as "Flos Lonicerae", "Herba Taraxaci", "Radix Trichosanthis", etc [8]. Through standard prescription name to ensure data accuracy and credibility, specification after secondary verification to ensure the data correctly.

2.5 Prescription Input and Data Extraction

A total of 198 literatures were obtained by searching, and 62 literatures were finally included according to the inclusion and exclusion criteria. According to the inclusion and exclusion criteria, 60 prescriptions were screened, involving 115 Chinese herbs. Application of Excel 2018 software name specification and after the summary data, sexual flavour to the analysis of drug, drug category analysis, high frequency counts; IBM SPSS Statistics 23.0 software was used for cluster analysis. Application of the IBM SPSS Modeler 18.0 software, to analyze drug association rules based on Apriori method respectively, set the minimum support degree is 10%, the minimum confidence level of 80%.

3. Results

3.1 Frequency Analysis into Drugs

According to the frequency analysis of 115 Chinese herbs, the total frequency of Chinese herbs was 595, among which Flos Carthami was used the most (40 times) and the lowest (1 time). A statistical data table of high-frequency drugs can be obtained by ranking the frequency of TCM from high to low. Table 1 shows the distribution of high-frequency TCM in prescriptions with frequency ≥ 9 times. Its top 10 kinds of high frequency of traditional Chinese medicine (TCM) in the order. Flos Carthami (40), Herba Lycopodii (34), Herba Vaccinii Urophylli (34), Ramulus Cinnamomi (27), Radix Angelicae Sinensis (26) and Radix Saposhnikoviae (23), Radix et Rhizoma Clematidis (21), Folium Artemisiae Argyi, Rhizoma

(17) Chuanxiong (17) and Myrrha (16).

Table 1: Distribution of high frequency TCMS in prescriptions with frequency ≥ 9 times

Serial number	Traditional Chinese medicine	Frequency/time	Frequency /%
1	Flos Carthami	40	6.73
2	Herba Lycopodii	34	5.72
3	Herba Vaccinii Urophylli	34	5.72
4	Ramulus Cinnamomi	27	4.54
5	Radix Angelicae Sinensis	26	4.37
6	Radix Saposhnikoviae	23	3.87
7	Radix et Rhizoma Clematidis	21	3.53
8	Folium Artemisiae Argyi	17	2.86
9	Rhizoma Chuanxiong	17	2.86
10	Myrrha	16	2.69
11	Rhizoma et Radix Notopterygii	15	2.52
12	Cortex Acanthopanax	15	2.52
13	Cortex Erythrinae	14	2.35
14	Lignum Sappan	14	2.35
15	Olibanum	13	2.18
16	Herba Schizonepetae	12	2.02
17	Semen Persicae	11	1.85
18	Radix Achyranthis Bidentatae	10	1.68
19	Radix Dipsaci	10	1.68
20	Radix Angelicae Pubescentis	9	1.52
21	Pericarpium Zanthoxyli	9	1.52
22	Fructus Chaenomelis	9	1.52
23	Ramulus Mori	9	1.52

3.2 Analysis of Chinese Medicinal Flavor and Meridians

All the traditional Chinese medicine, respectively, in accordance with the medicinal properties, ingredients, belongs to the classification, after the classification, in turn, frequency analysis, the results show that the therapy of hand trauma patients with postoperative prescription drugs in the medicinal, flat, slightly more than give house warming party to temperature, hot, cool, see table 2; Ingredients is given priority to with sheen, bitter, sweet, with small, light, as shown in table 3; To the liver, spleen, heart and kidney meridian, see table 4.

Table 2: in all Chinese medicine medicinal properties analysis of literature

Serial number	Drug properties	Frequency/time	Frequency /%
1	wen	333	55.97
2	flat	102	17.14
3	lukewarm	63	10.59
4	cold	37	6.22
5	Slight cold	26	4.37
6	hot	22	3.70
7	cool	12	0.21
8	The heat	0	0.00

Table 3: Analysis of all TCMS included in the literature

Serial number	Ingredients	Frequency/time	Frequency /%
1	simba	439	73.78
2	bitter	259	43.53
3	gump	178	29.92
4	Slight bitterness	47	7.89
5	salty	42	7.01
6	acid	27	4.53
7	astringent	3	0.50
8	A touch of comfort	1	0.17
9	light	1	0.17

Table 4: Analysis of all Chinese herbs in the included literature

Serial number	Meridian tropism	Frequency/time	Frequency %
1	Liver	463	77.81
2	The spleen	247	41.51
3	Heart	194	32.61
4	Renal	188	31.57
5	Lung	123	20.67
6	Urinary bladder	105	17.65
7	The stomach	77	12.94
8	Bravery	37	6.22
9	Large intestine	33	5.55
10	The pericardium	27	4.54
11	Three focal	3	0.50
12	Small intestine	2	0.34

3.3 High Frequency Drug Clustering Analysis

Cluster analysis was performed on the 23 herbs used more than 9 times, using the average linkage (between groups) of the pedigree diagram, rescaled distance cluster combination, see Figure 1. Reference to Chinese Pharmacopoeia (2020 edition) [8], *Chinese Materia Medica*[9], High frequency of TCM can be divided into five types: Class 1: Olibanum, Myrrha. Class 2: Radix et Rhizoma Clematidis, Ramulus Mori, Herba Lycopodii, Radix Angelicae Sinensis, Radix Angelicae Pubescentis, Cortex Acanthopanax, Rhizoma et Radix Notopterygii, Herba Schizonepetae, Radix Saposhnikoviae. Class 3: Folium Artemisiae Argyi, Cortex Erythrinae, Radix Achyranthis Bidentatae, Radix Dipsaci, Flos Carthami, Herba Vaccinii Urophylli, Fructus Chaenomelis. Class 4: Ramulus Cinnamomi, Semen Persicae. Class 5: Rhizoma Chuanxiong, Lignum Sappan, Pericarpium Zanthoxyli. Known class 1 drug efficacy is given priority to with scattered silt raw muscle invigorate the circulation, detumescence, class 2 with functions of t2dm and invigorate the painkillers, give priority to with functions of dehumidification, hemostatic t2dm class 3, class 4 with huoxue quyue, wen tong pulse is given priority to, class 5 is given priority to with acetanilide, qi and invigorate the circulation of detumescence. Among them, the functions of t2dm, and active analgesic drugs accounted for most. See Table 5.

Table 5: high-frequency medicines clustering analysis results

Serial number	Efficacy function	Number of drug flavors	Traditional Chinese medicine name
1	Scattered silt muscle invigorate the circulation, detumescence	2	Olibanum, Myrrha
2	Dispelling wind and dredging collaterals, promoting blood circulation and relieving pain	9	Radix et Rhizoma Clematidis, Ramulus Mori, Herba Lycopodii, Radix Angelicae Sinensis, Radix Angelicae Pubescentis, Cortex Acanthopanax, Rhizoma et Radix Notopterygii, Herba Schizonepetae, Radix Saposhnikoviae
3	Dispel wind and dehumidify, stop bleeding and channel	7	Folium Artemisiae Argyi, Cortex Erythrinae, Radix Achyranthis Bidentatae, Radix Dipsaci, Flos Carthami, Herba Vaccinii Urophylli, Fructus Chaenomelis

4	Qi and remove stasis, warm by pulse	2	Ramulus Cinnamomi, Semen Persicae
5	Acetanilide, qi and activating blood detumescence	3	Rhizoma Chuanxiong, Lignum Sappan, Pericarpium Zanthoxyli

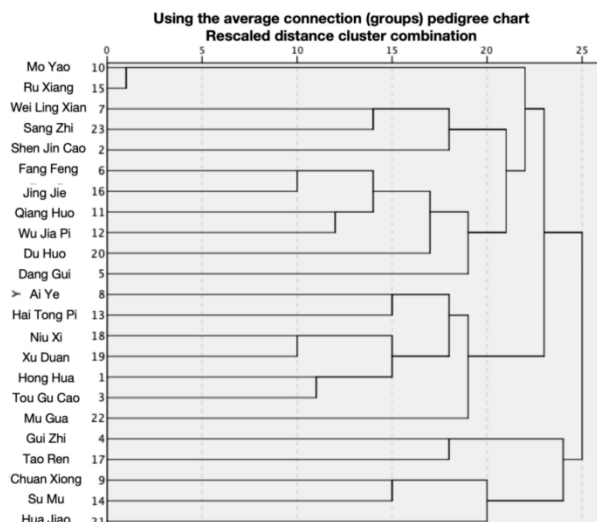


Figure 1: high frequency drug cluster analysis tree

3.4 Drug Association Rules Analysis

Frequency of usage of nine or more 23 of TCM drug association rules analysis, the association rules can be obtained by visual analysis network diagram. See Figure 2. For high-frequency medicines for two, three, four, association rules analysis. Set the support > 10% and confidence > 80%, and take the top ten in order of support from high to low, 30 association rules can be obtained, and the gain (degree of improvement) is more than 1. The results showed that the highest support in binomial association analysis was Flos Carthami-Herba Lycopodii (64.15%), and the highest support was Flos Carthami-Herba Lycopodii (64.15%). The gain (degree of improvement) was 1.09, and the confidence was 82.35%, as shown in Table 6. Third-order correlation analysis support in a maximum of Flos Carthami, Herba Lycopodii - Herba Vaccinii Urophylli (42.58%), gain (increased) 1.21, 91.66% confidence level, as shown in table 7. Fourth-order correlation analysis in support of the highest for Herba Vaccinii Urophylli - Radix Angelicae Sinensis, Herba Lycopodii - Flos Carthami (30.18%), gain (increased) 1.26, The confidence was 81.25%, as shown in Table 8.

Table 6: Binomial association rules for high-frequency drugs

The last item	In the preceding paragraph	Percentage of support	Percentage of confidence	gain
Flos Carthami	Herba Lycopodii	64.15	82.35	1.09
Flos Carthami	Herba Vaccinii Urophylli	64.15	91.17	1.20
Flos Carthami	Radix Angelicae Sinensis	49.05	84.61	1.12
Herba Vaccinii Urophylli	Folium Artemisiae Argyi	32.07	88.23	1.37
Flos Carthami	Folium Artemisiae Argyi	32.07	94.11	1.24
Olibanum	Myrrha	30.18	81.25	3.31
Herba Vaccinii Urophylli	Cortex Erythrinae	26.41	92.85	1.44
Myrrha	Olibanum	24.52	100.00	3.31
Radix Saposhnikoviae	Herba Schizonepetae	22.64	91.66	2.11
Herba Lycopodii	Herba Schizonepetae	22.64	91.66	1.42

Table 7: Three association rules for high-frequency drugs

The last item	In the preceding paragraph	Percentage of support	Percentage of confidence	gain
Flos Carthami	Herba Lycopodii + Herba Vaccinii Urophylli	45.28	91.66	1.21
Flos Carthami	Radix Angelicae Sinensis + Herba Vaccinii Urophylli	35.84	89.47	1.18
Herba Vaccinii Urophylli	Radix Angelicae Sinensis + Herba Lycopodii	33.96	83.33	1.29
Flos Carthami	Radix Angelicae Sinensis + Herba Lycopodii	33.96	88.88	1.17
Flos Carthami	Ramulus Cinnamomi + Herba Vaccinii Urophylli	33.96	88.88	1.17
Herba Vaccinii Urophylli	Folium Artemisiae Argyi + Flos Carthami	30.18	93.75	1.46
Flos Carthami	Folium Artemisiae Argyi + Herba Vaccinii Urophylli	28.30	100	1.32
Ramulus Cinnamomi	Radix et Rhizoma Clematidis + Herba Lycopodii	28.30	80	1.57
Flos Carthami	Radix et Rhizoma Clematidis + Herba Vaccinii Urophylli	28.30	80	1.06
Herba Lycopodii	Radix Saposhnikoviae + Flos Carthami	26.41	92.85	1.44

表8: 高频药物四项关联规则

The last item	In the preceding paragraph	Percentage of support	Percentage of confidence	gain
Herba Vaccinii Urophylli	Radix Angelicae Sinensis + Herba Lycopodii + Flos Carthami	30.18	81.25	1.26
Flos Carthami	Radix Angelicae Sinensis + Herba Lycopodii + Herba Vaccinii Urophylli	28.30	86.66	1.14
Flos Carthami	Radix Saposhnikoviae + Herba Lycopodii + Herba Vaccinii Urophylli	24.52	84.61	1.12
Herba Vaccinii Urophylli	Radix Saposhnikoviae + Herba Lycopodii + Flos Carthami	24.52	84.61	1.31
Flos Carthami	Ramulus Cinnamomi + Herba Lycopodii + Herba Vaccinii Urophylli	24.52	84.61	1.12
Flos Carthami	Radix et Rhizoma Clematidis + Herba Lycopodii + Herba Vaccinii Urophylli	20.75	81.81	1.08
Herba Vaccinii Urophylli	Radix Saposhnikoviae + Radix Angelicae Sinensis + Herba Lycopodii	20.75	81.81	1.27
Flos Carthami	Radix Saposhnikoviae + Radix Angelicae Sinensis + Herba Lycopodii	20.75	81.81	1.08
Herba Lycopodii	Radix Saposhnikoviae + Herba Vaccinii Urophylli + Flos Carthami	20.75	100	1.55
Flos Carthami	Radix Angelicae Sinensis + Ramulus Cinnamomi + Herba Lycopodii	20.75	81.81	1.08
Herba Lycopodii	Radix Angelicae Sinensis + Ramulus Cinnamomi + Flos Carthami	20.75	81.81	1.27

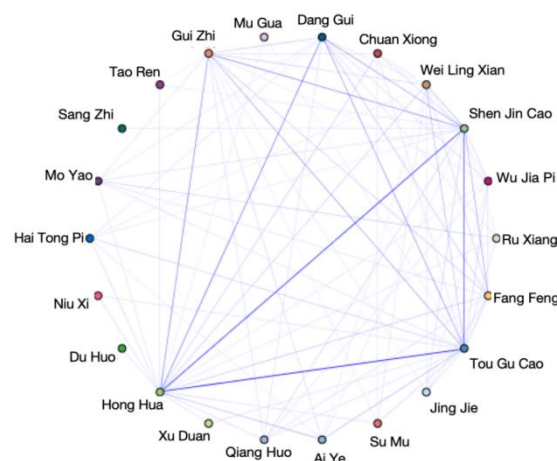


Figure 2: Network diagram of high-frequency drug association rule analysis

4. Discussion

Hand is an important function of organs, can perform a variety of fine operation, may lead to severe hand trauma life affected by significantly, even loss of life. In recent years, the number of hand trauma patients increased year by year, hand trauma caused by many factors, after a fall, found in a car accident, industrial injury, a direct hit, and so on and so forth [10]. At the same time, due to the high frequency of hand use in daily life, coupled with the lack of awareness of hand protection, hands are more likely to be injured. The common treatment of hand trauma is surgical treatment, through which the recovery of the affected limb can be improved [11], However, even after surgery, hand function is often affected [12]. There are many factors affect postoperative recovery in patients with hand trauma, including nerve damage, fracture healing deformity, swelling of the wound, ligament contracture and scar adhesion and other factors [13]. Some studies have pointed out that Chinese medicine treatment (including oral administration of Chinese medicine and external washing of Chinese medicine) can achieve good clinical efficacy for patients with hand trauma after operation [14].

A series of symptoms such as joint stiffness and tendon adhesion that occur after hand trauma can be attributed to the category of "bi syndrome" in traditional Chinese medicine. As recorded in Miraculous Pivot, "the meridian is involved in the regulation of Yin and Yang by blood and qi, which is beneficial to the joints." Main and collateral channels is the system of joint movement, and also closely related to qi and blood running, damage of main and collateral channels, qi and blood, perform poorly, the body's activities. At the same time, meridians and viscera is closely related to the human body, "pivot, the theory of" records: "meridians, belongs to the abdomen dirty inside and outside the collaterals in segments". Xue Zheng Lun (on Blood Syndrome) proposed that "all pain caused by a fall injury is due to blood stasis and stagnation". If the blood stasis is not present in the veins, it will cause pain

over time, and the flexion and extension are not good, resulting in contracture of tendons and vessels and limited movement of fingers. The doctor of traditional Chinese medicine thinks, hand trauma can cause vein injury, blood away from the, overflow to the outside, long and blood circulation, rheumatism attack table, meridians bizu, activity decreased after injury, and qi stagnation blood stasis caused by patient, meridian bizu. At the same time. External trauma consumes qi and injures blood, which will cause qi and blood deficiency of patients [15]. Arthralgia Syndrome Theory of Three Causes and One Disease Syndrome: Xu Arthralgia Theory pointed out, "Arthralgia is caused by disease, pain is caused by cold, movement is caused by wind and dampness is caused by damp. In the bone is heavy, in vein, blood clotting and do not flow, the reinforcement is inconvenient flexion, the meat is good, the skin is cold ". Therefore, patients with hand trauma are often characterized by deficiency, stasis and pain. In the treatment, the treatment principles of promoting blood circulation and removing blood stasis, removing wind and dredging collaterals should be adopted [16]. Fumigation and washing of traditional Chinese medicine has the effects of promoting qi, reducing swelling, relieving pain and promoting blood circulation. Through fumigation and washing, the drug components can be absorbed through the skin, which can help repair and heal the injured tissue, improve the blood supply of the injured area, and reduce the inflammatory reaction. It has good clinical efficacy and has been widely used. Xu Jin [17] et al treated 30 patients with hand trauma after high-pressure paint injection and found that compared with rehabilitation training, the effect of adding Chinese medicine lotion was better, with an excellent and good rate of 87%, which was significantly higher than that of the other group (47%), suggesting that Chinese medicine external washing can improve the recovery of hand function. JiZiQin [19] in 112 cases of hand trauma, such as postoperative patients after group control experiment, the results show that the effect of observation group with traditional Chinese medicine lotion better, UEFI score and MMT rating scores are higher.

A total of 62 articles were included in this study, involving 115 herbs. The high-frequency herbs were Flos Carthami, Herba Lycopodii, Herba Vaccinii Urophylli, Ramulus Cinnamomi, etc. Flos Carthami was the most frequent. For 40 times, Flos Carthami channelized meridians and relieved pain, promoted blood circulation and removed blood stasis. Modern pharmacological studies have shown that Flos Carthami yellow can expand peripheral blood vessels, improve microcirculation, and reduce cell ischemia and hypoxia [18]. Herba Vaccinii Urophylli, Herba Lycopodii times for 34 times, Ji-kun wang [19], etc., points out that Herba Lycopodii various chemical composition have anti-inflammatory analgesic, anticoagulant antioxidant effect, Treatment of CFA-induced arthritic rats with Lycopodii alkaloids alleviated joint swelling and ameliorated synovitis at the affected sites. According to the analysis of properties, tastes and meridians, the medicinal properties are mainly warm and smooth. Warm drugs can often warm the meridians, clear the collaterals, dispel cold and disperse the knot, and smooth drugs can relieve the effect, often nourishing and nourishing. Ingredients sheen, bitter, sweet, xin qi and blood, qi and blood are often used to stagnate and bitter remedy heat clearing damp, treatment of joint grinds, ribs contracture. The main

meridians are the liver, spleen, heart and kidney meridians. After trauma, the viscera function is abnormal. It regulates the liver and spleen to generate blood and regulate the heart and kidney to control water and qi, so as to reduce the swelling and local pain of patients.

Drugs, according to the results of correlation analysis in the medicine group common compatibility of promoting blood circulation to remove blood stasis drugs + functions of dehumidification medicine, promoting blood circulation to remove blood stasis drugs, tonic medicine hematinic, functions of dehumidification medicine + + hemostatic hemostatic medicine, promoting blood circulation to remove blood stasis drugs. For example, the blood-activating and blood-stasis drugs combined with Quwind-dehumidifying drugs are: Flos Carthami-Herba Lycopodii, Flos Carthami-Herba Vaccinii Urophylli; for example, the blood-activating and blood-stasis drugs combined with tonifying drugs are: Flos Carthami, Radix Angelicae Sinensis. For example, the anti-wind and dehumidification drugs combined with hemostatic drugs are: Herba Vaccinii Urophylli-Folium Artemisiae Argyi. For example, the combination of blood-activating and blood-stasis drugs with hemostatic drugs is: Flos Carthami-Folium Artemisiae Argyi. It can be concluded that these four herbs are closely related. According to the principle of support from high to low filter, Support Flos Carthami, Herba Lycopodii, Flos Carthami, Herba Lycopodii - Herba Vaccinii Urophylli, Herba Vaccinii Urophylli - Radix Angelicae Sinensis, Herba Lycopodii - Flos Carthami for high, Flos Carthami promoting blood circulation to remove blood stasis, treatment of blood stasis block, "Ben hui said" records: "... Or fall injury and blood YuJi, or ulcers superficial swollen collapse, is the certificate of all blood feud, non Flos Carthami can't". Herba Lycopodii, Herba Vaccinii Urophylli, dispelling wind and dredging collaterals, relaxing tendons and promoting blood circulation. Raw herbs preparation of sexuality "records" Herba Lycopodii gas knot pain, injury, Jin Chuang internal injuries, to phlegm cough, cure sore carbuncle pawn brothers." Radix Angelicae Sinensis invigorate the menstruation pain, "Ben is" yue: "Radix Angelicae Sinensis taste sweet, heavy, light and bitter, fill in, specialised blood tonic, in line with filling, and blood, if blood qi, is also the effective medicine of blood." Share, the medicine can relieve pain, invigorate the circulation and t2dm can detumescence, can be used for hand trauma, postoperative repression of main and collateral channels, blood stasis, reduce the occurrence of postoperative adverse reactions.

Drugs, according to the results of cluster analysis of high-frequency Chinese medicine can be divided into five types: Olibanum, Myrrha, invigorate the circulation of the raw muscle pain, detumescence, phase should be used, scattered WenTong, to treat blood stagnate and injuries. Harry cloud patterns, etc. [21] studies have shown that proteins of Olibanum can inhibit seepage, and affect the prostaglandin E2 (PGE2), vascular endothelial diastolic factor (NO) generation to achieve anti-inflammatory effect, "Ben yan yi" cloud: "Myrrha, who play on the muscle must be swelling, meridian, qi and blood, indicates setting, reason is". Studies have shown that [22] Myrrha sterone can alleviate the symptoms of patients by inhibiting the inflammatory response. The second category of Radix et Rhizoma Clematidis, Ramulus Mori, Herba Lycopodii drugs such as functions of t2dm, invigorate

the circulation of pain, such as LIN [23], the study found The saponins of Radix et Rhizoma Clematidis are closely related to anti-inflammation and analgesia. The saponins of Radix et rhizoma clematidis can reduce the damage of cartilage layer and the degradation of proteoglycan in cells. The third type of Folium Artemisiae Argyi, Cortex Erythrinae, Radix Achyranthis Bidentatae, Radix Dipsaci, Flos Carthami, Herba Vaccinii Urophylli, Fructus Chaenomelis, functions of dehumidification, hemostatic t2dm is given priority to, in the process of endogenous clotting, Folium Artemisiae Argyi extract can be triggered by FXII factors have the effect of promote blood clotting, Moreover, it can inhibit downstream substrates to participate in endogenous coagulation through the regulation of plasminogen [24]. The fourth kind of Ramulus Cinnamomi, by the Persicae to huoxue quyu, wen tong pulse is given priority to. Changsha Medicinal Interpretation said: "Ramulus Cinnamomi enters the liver and divides the blood, and determines the meridians to achieve prosperity and depression..... Lift the depression of Qing Yang, reduce the thrust of turbiditism Yin, relieve the acute clonic of tendons and veins, and relieve the obstruction of joints." Class V Rhizoma Chuanxiong, Lignum Sappan, Pericarpium Zanthoxyli. It is mainly used to relieve pain, promote blood circulation and detumescence. Modern pharmacological studies have shown that [25], Rhizoma Chuanxiong water extract can improve endothelial cell membrane damage, this function is closely related to the antioxidant effect, by improving endothelial cell function, strengthen its ability to remove free radicals, the extract concentration becomes high, and the ability to resist oxygen also rise. Pericarpium Zanthoxyli dissipates cold in warm environment, dispelling wind, killing insects and relieving pain. Recent studies have shown that Pericarpium Zanthoxyli can be used for analgesia and anesthesia, and its active substance α -xanthoxyli can inhibit A δ nociceptin to produce analgesic effect [26] In summary, this paper analyzes the rules of external use of traditional Chinese medicine fumigation and washing in patients after hand trauma by data mining method, but there are still shortcomings in this study: the lack of analysis results of the dose-effect relationship of traditional Chinese medicine; A smaller number of the foreign literature retrieval, lack of foreign related clinical research data; Summary form is more, the lack of visual upgrades; Literature on the low side, the total sample size is less, and so on. In conclusion, the pathogenesis of postoperative hand trauma is qi stagnation and blood stasis and obstruction of meridians. Its treatment should follow the principle of dispelling wind and clearing collaterals, promoting blood circulation and removing blood stasis. This study based on data mining technology, the research results can provide clinical traditional Chinese medicine of traditional Chinese medicine fumigation therapy of hand trauma, postoperative sent medicine to provide data reference, can also be used for related proprietary Chinese medicine prescription optimization and new drug research and development.

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