

Research Progress on the Pharmacological Effects and Clinical Application of Jupi Zhuru Decoction

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Abstract: As a classical prescription, Jupi Zhuru Decoction has a wide range of medicinal activity and clinical characteristics. In this composition, we searched all relevant literature on CNKI, including "Jupi Zhuru Decoction", and summarized and analyzed its pharmacological function and clinical curative effect. Major medicinal functions include: inhibition of *Helicobacter pylori* proliferation, inhibition of inflammatory response, enhancement of *Helicobacter pylori* pumping activity, antitumor effects; applications include: tumor chemotherapy-related nausea and vomiting, diabetic gastroparesis, stomach esophagus regurgitation sickness, pregnancy hyperemesis etc. Despite the numerous studies that have emerged in recent years, there are still various issues regarding the clinical use of Jupi Zhuru Decoction. The article attempts to provide reference ideas for research on Jupi Zhuru Decoction and promote the development of TCM.

Jupi Zhuru Decoction guide from the Eastern Han Dynasty doctor Zhang Zhongjing in volume [1], the primary alias are Zhuru Decoction, Chenpi Decoction, Zhuru Chenpi Decoction, respectively from "Medical Introduction" [2] volume 7, "Medical Compendium" [3] volume 16; "A Comprehensive Dictionary of Ancient and Modern Chinese Medical" [4]. The group consisted of: orange peel, *caulis bambusae*, Chinese dates, common ginger rhizome, ural licorice root, *panax schin-seng*, and six herbs commonly used in Chinese medicine, the dose being converted according to the Han measure, that is to say, one or two parts of 15.625g for one liter of 200ml. The chief treatment for gastric insufficiency is hot nausea. Modern pharmacological studies have found that Jupi Zhuru Decoction has the effects of inhibiting *Helicobacter pylori* proliferation, anti-inflammatory agents and preventing vomiting, enhancing pyloric pumping activity, enhancing gastric motility, and anti-cancer. Clinical treatment is primarily related to the mechanisms of vomiting, involving digestive, endocrine, and neoplastic disease. I list below hesperidin, glycyrrhetic acid, gingerol, etc. play the main role.

1. Pharmacological Action

Wang Xiaoshuang [5] used ultra-4-level rod-time-of-flight series mass spectrometry (UPLC-Q-T O F/MS) technology to preliminarily determine the blood ingredients of orange peel soup, mainly involving dried old orange peel, ural licorice, rhizoma zingiberis recens, particularly: ① Tangerine peel: flavonoids, including hesperetin-7-rutinoside, naringin and so on; ② Glycyrrhiza: resykin, flavonones, triterpenes; ③ Common ginger: gingerol, including 6-phenol, 6-gingerenol, etc. Of these, hesperidin, profisone, gingeropicin, etc., play the capital part, as will be seen below.

1.1 Anticancerous Activities

Traditional Chinese medicine has a lengthy history of anti-tumor aspects, such as the discovery of drugs like paclitaxel and vincristine. Traditional TCM anti-cancer drugs fall into two main classifications, namely cytotoxic drugs, which contain anti-cancer active ingredients that directly kill tumor cells and inhibit tumor growth. The other type is immunomodulatory drugs, which help the body improve its ability to fight off disease, improve a patient's living quality, alleviate the toxic side effects of radiation and chemotherapy, and assist in completing the course of Western medicine. The current components with antitumor effects mainly include alkaloids, portinin, flavonoids, making derivatives 18F-FEE, lactones, such as triptolide, ginsenoside Rg3, β -lecanene, matrine, lactide, etc. In the Jupi Zhuru Decoction, hesperidin, glycyrrhethin, gingeropicin, etc., all act to this varying degree of anti-cancer effect.

Hesperidin can induce apoptosis in cancer cells of the liver by activating Caspase-8, Caspase-9, and Caspase-3 in hepatocellular carcinoma cells. In addition, it can also play an anti-tumor role by anti-initiating mutation, promoting the expulsion of carcinogens, and detoxification. Such as breast cancer [6], lung cancer [7], gastric cancer, intestinal cancer [8], skin cancer [9], bladder cancer [10] and other tumor sickness. Licorice lintate has a certain inhibitory and clearing effect on tumor cells such as osteosarcoma [11], neoplasms [12], gastric cancer [13], and colonic neoplasms [14]. Through the study of ginger extract, Liu Hui et al. [15] found that its ginger alcohol could significantly inhibit the growth of tumors, prolong the dead time of half of the experimental mice, and the prolongation rate of life in the administered group and the high-dose group reached 30%~60% and 32.4%, respectively.

1.2 Anti-Inflammatory

Inflammation is a complex defensive response that occurs when tissues respond to stimuli through injury factors. In the production of inflammation in the body, the main mechanism is that epoxidase converts the metabolites of arachidonic acid into inflammatory and pain-causing substances such as prostaglandins, thereby producing inflammation.

Western medicine is predominantly based on antibiotics, and inevitably there is resistance to antibiotics, liver and kidney toxicity, and microbiome disorders. Traditional Chinese medicine has a distinct anti-inflammatory superiority, with great efficacy, few adverse effects, and ample sources. Its main active ingredients include biosynthesis, flavonols, saccharide, tonka bean camphor, triterpenoids, etc. TCM has significant advantages in anti-inflammation, with superior efficacy, few untoward reactions, and abundant sources. Its leading active ingredients include alkaloids, flavonoids, polysaccharides, coumarins, terpenoids, etc.

Peng Lei et al. [16] In the study of adjuvant arthritis (AA). Experimental rats treated with hesperidin intervention in AA found that hesperidin derivatives two and five inhibit prostaglandin E2 synthesis, with a clear quantitative effect relation between hesperidin concentrations ranging

from 110-7 to 110-4 mol L⁻¹. Ge et al. [17] in studying cyclophosphamide-induced cystitis found that glycyrrhizic acid may have a role in bladder mucosal protection. Markov et al. [18] found that edema in a mouse model of histamine-induced acute inflammation was significantly inhibited by glycyrrhizic acid, but also effective in mice with Krebs-2 carcinoma and ascites. Nonn L et al. [19] found that 6-curcumin could play an anti-inflammatory effect by upregulating the expression level of protein kinase phosphatase 5 (MKP5) and inhibiting the release of tumor necrosis factor α (TNF- α) and interleukin one β .

1.3 Anti-Vomiting Effect

Gastric breakdown, qi, is vomiting from the stomach through the mouth. Western medicine believes that vomiting reflex mainly involves targets: 5-hydroxytryptamine (5-HT), tachykinin, dopamine (DA), dopamine two receptor, 5-hydroxytryptamine receptor (5-HTR), neurokinin one receptor (NK1R), etc.[20]. Western medicine takes the 5-HTR blocker Ondansetron as a specimen, which acts on only one receptor, commonly requires a combination of drugs, and has different degrees of adverse reactions. Chinese medicine has countless components and targets, which can not only be point-to-point, but also play a role in overall regulation, and in clinical application, the efficacy is better. [21]

Ginger, which is homologous to drugs and food, affects the lungs, spleen and stomach. It cures colds and vomiting, and cures fish and crab poison. In recent years, pharmacological studies have confirmed the effectiveness of its components. Among them, the main antinausea agent is: ginger. Mainly by inhibiting the activity of the 5-HT₃ receptor, modulating the substance P receptor and choline receptor activity. This advance provides recent proof-of-concept support for clinical treatment and broadens the train of thought. In recent years, it has good efficacy in the treatment of malignant tumor chemotherapy-related vomiting and hyperemesis gravidarum and other diseases. [22-23]. Other studies depicted that 6-curcumin inhibited significant H. pylori activity in vitro with a minimum inhibitory concentration of one mg mL⁻¹, suggesting the potential possibility of curcumin in the treatment of gastric ulcers, promoting the development of [24] in the treatment of digestive diseases.

2. Clinical Application

2.1 Chemotherapy-Related Nausea and Vomiting

Chemotherapy has become the fundamental treatment in cancer treatment, with outstanding clinical efficacy, but also with the dreaded adverse reactions such as anorexia, nauseated and vomiting in the digestive system; the three lines of hematopoietic system decreased; moreover, hair loss, often commonly severely impairs the quality of life of invalid and delays the course of treatment. One of the most common adverse effects is chemotherapy-associated nausea and vomiting. Severe cases can lead to fluid deprivation, apoplexy, electrolyte disturbance, and clinical practice must be vigilant. When it comes to treatment, western medicine is mainly treated with 5-HT₃ receptor antagonists, dopamine receptor antagonists, corticosteroids, NK-1 receptor antagonists and other drugs. In TCM, the classic automatic prescription of Jupi Zhuru Decoction has achieved curative effect in this illness, and has been widely used in gastric cancer [25], colorectal carcinoma [26], pregnancy trophoblast tumor [27] and other middle and late cancer CINV [28]. Cao Yibo et al. [26] studied the results of CINV after surgery and colorectal cancer and found that serum 5-HT₃ receptor concentration and CINV severity was related, and Jupi Zhuru Decoction combined with traders can cut down vomiting grade, improve the score of TCM, and improve the quality of life of patients. Through a randomized controlled study of 160 patients with

CINV of gestational trophoblastic C In V tumors, Feng Yuan [27] found that flavored Jupi Zhuru Decoction has a better prevention effect on the disease, and can shorten the remission time of vomiting and concomitant complaints. Lai Yiqin and others [28] found in studying the results of Jisheng Jupi Zhuru Decoction in the treatment of advanced cancer hiccups, and found that Jisheng Jupi Zhuru Decoction has a favorable stop and er effect.

2.2 Diabetic Gastroparesis

Diabetic gastroparesis refers to a gastric emptying syndrome caused by complex factors such as autonomic disorders, Cajal cell structure and function. Main clinical signs: repeated nausea and vomiting, bloating after dinner, with or without bellyache, and even the appearance of mastitis. However, it needs to rule out mechanical obstruction. The occurrence of co-morbidities not only affects a patient's quality of citizens' life, but also directly affects the absorption and efficacy of hypoglycemic drugs. Related studies have found that soaring Jupi Zhuru Decoction in the routine treatment of diabetes can improve the glycemic control and gastrointestinal hormone levels of [29-30]. With methylcobalamin treatment, it can improve gastric motility, promote remedy absorption, and effectively improve the cure rate of [31]. Later, Hu Yanli [32], Fang Xin [33], Liu Guangzan [34], He yulan [35] and other patients also confirmed the significant clinical effect of Jupi Zhuru Decoction in the treatment of diabetic gastroparesis through a large number of clinical observations.

2.3 Pregremestesis

The main manifestations of pregnancy reaction are dizziness, fatigue, a sour taste in food, a jaded appetite, and even nausea and vomiting. It is related to the increase of HCG in pregnant women in early pregnancy, the decrease of gastric acid secretion and the prolongation of gastric emptying time, which generally does not require special treatment. However, some pregnant women with severe symptoms seriously affect the quality of life, and even life-threatening, said hyperemesis gravidarum, which requires immediate medical treatment. Western drugs attach importance to clarifying water and electrolyte disorders based on the test results, supplementing water and electrolytes as appropriate, while giving priority to nutritional supplementation and, if necessary, fasting. Chinese medicine focuses on treating the symptoms as well as the root causes, and energizing the qi so that depression is not empty. Hannah [36], qi treasure silver [37], jin-yan liu [38], xiao-qin liu [39], etc.,by observing two different treatment methods for pregnancy malignancy, namely Western medicine conventional treatment and conventional treatment combined with insignificant half-summer soup with orange peel bamboo soup, found that the combination of traditional Chinese and Western medicine treatment group can accelerate the patient's symptom improvement time, significantly shorten the course of the disease and reduce the recurrence rate, and can significantly promote the good development of the fetus.

2.4 Others

In addition, Jupi Zhuru Decoction is also widely used in the treatment of gastroesophageal regurgitation [40], gastroesophageal reflux esophagitis [41], bile reflux gastritis [42], post-stroke hiccup [43], chronic renal function [44], arrhythmia [45], severe hepatitis refractory vomiting [46], polio postoperative nausea and vomiting [47], pertussis [48] and other disorders.

3. Conclusion

Jupi Zhuru Decoction, the foremost treatment of retinopathy. The cause is nothing more nor less

than a deficiency in the stomach. Zhongqi depends on ginseng, licorice, jujube supplement; orange peel, bamboo, cold and warm, under reverse gas; ginger opens the airways and connects the upper and lower airways. This is because the upper coke gas is borne in the middle coke, the middle coke is borne in the upper coke, the upper coke is borne in both, and then the middle gas self-adjusts. Modern pharmacological studies have found protective membrane damage in Jupi Zhuru Decoction; antineoplastic; inhibits *Helicobacter pylori* proliferation, enhances pyloric pumping activity, and has anti-inflammatory and anti-nausea effects. At present, it is mainly used in the treatment of cancer chemotherapy related to vomiting, gastroparesis, hyperemesis gravidarum and other diseases. Not only was the efficacy better than Western medicine alone, and good safety evaluation, less adverse reactions.

However, despite this, there are still some drawbacks to TCM use. In one respect, pharmacological research is still based on animal experiments, and sources, prescription dosages, and decoction methods are differentiated; applications are dominated by clinic observation and case reports and lack large sample size data support. On the other hand, the preparation problem still needs to be improved as some patients find it difficult to take their medication due to frequent symptoms and irritation of decoction. Moreover, Jupi Zhuru Decoction is a simple medicine containing ginseng, dates, licorice tonic, bamboo heat, orange peel, ginger to quit vomiting. The effect is significant for functional nausea and simple complaints, and the fear effect is reduced for malignant tumors and other relatively complex diseases, so we should look at its pulse to see what the reverse is, along with evidence for treatment. Note the use of compounds such as Jisheng Jupi Zhuru Decoction, Jupi Zhuru Decoction, and Maimendong Decoction, which is mainly responsible for the deficiency of yin in the spleen and stomach, the thirst of such patients is evident, and the yin injury is still great. In addition to the six medicines of the Jupi Zhuru Decoction, it is the re-use of wheat and dry, phlegm, and qi; loquat leaves and stomach, qi and qi work and have considerable efficacy in clinical applications.

In the treatment of contemporary diseases, TCM and Western medicine play to their respective strengths. Western medicine is swift and effective, but has dilemma with large adverse reactions, liver and kidney toxicity, drug resistance and allergic reactions. The onset of TCM is relatively mild, but a growing number of studies have confirmed superior safety assessments and fewer clinical adverse reactions. In the case of TCM, first, the control of its quality is particularly critical for TCM; second, we need to focus on dosage and efficacy compatibility of formulations; in addition, we also need to pay attention to the preparation, purification and other process improvement.

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