Chinese Therapeutic Actions

1. Harmonizes the Exterior and the Interior

Shaoyang syndrome: Chai Hu (Radix Bupleuri), with its ascending and dispersing functions, is the key herb in treating shaoyang syndrome, a disorder in which the pathogenic factor is trapped halfway between the exterior and the interior. Due to the complexity of this condition, patients will exhibit both exterior and interior symptoms and signs, such as alternate spells of chills and fever, fullness and distention of the chest and hypochondriac region, a bitter taste in the mouth, dry throat, poor appetite, nausea and vertigo, irritability, and a wiry pulse. Chai Hu harmonizes shaoyang conditions, meaning that it will guide the trapped pathogenic factors outwards.

- Shaoyang syndrome: use Chai Hu with Huang Qin (Radix Scutellariae). Chai Hu eliminates the pathogenic factor from the exterior and Huang Qin clears heat from the interior. The combination of these two herbs eliminates pathogenic factors from both the exterior and the interior, and harmonizes half-exterior half-interior conditions. Exemplar Formula: Xiao Chai Hu Tang (Minor Bupleurum Decoction).

- Shaoyang and yangming syndromes together: use this herb with Huang Qin (Radix Scutellariae), Bai Shao (Radix Paeoniae Alba), Zhi Zi (Fructus Gardeniae) and Da Huang (Radix et Rhizoma Rhei). Exemplar Formula: Da Chai Hu Tang (Major Bupleurum Decoction).

- Lingering exterior conditions with the pathogenic factor entering the shaoyang stage, with fever: combine Chai Hu with Ge Gen (Radix Puerariae) and Huang Qin (Radix Scutellariae). Exemplar Formula: Chai Ge Jie Ji Tang (Bupleurum and Pueraria Combination).

Malaria is considered a shaoyang disorder, as patients often have alternating spells of chills and fever. Chai Hu is used for its ability to dispel the pathogenic factor and harmonize the interior and exterior.

- Malaria: use Chai Hu with Qing Hao (Herba Artemisiae Annuae), Bing Lang (Semen Arecae), Chang Shan (Radix Dichroae) and Cao Guo (Fructus Tsaooko).

2. Spreads the Liver and Relieves Liver Qi Stagnation

Liver qi stagnation: Acidic and aromatic, Chai Hu has ascending and dispersing characteristics. It is commonly used to unblock Liver qi stagnation and spread Liver qi. Clinical manifestations of Liver qi stagnation include emotional distress, fullness and distention of the chest and hypochondriac region, irritability, headache, eye disorders, breast swelling and pain, irregular menstruation, amenorrhea or menstrual cramps, and jaundice.

- Liver qi stagnation with stress and emotional distress: combine Chai Hu with Bai Shao (Radix Paeoniae Alba), Dang Gui (Radicis Angelicae Sinensis), and Bo He (Herba Menthae). Exemplar Formula: Xiao Yao San (Rambling Powder).

- Liver qi stagnation causing hypochondriac fullness and pain: use this herb with Bai Shao (Radix Paeoniae Alba), Chuang Xiong (Rhizoma Ligustici Chuaxiong) and Zhi Ke (Fructus Aurantii). Exemplar Formula: Chai Hu Shu Gan Tang (Bupleurum Powder to Spread the Liver).

- Liver qi stagnation with cold extremities: add Xiang Fu (Rhizoma Cyperti), Zhi Shi (Fructus Aurantii Immaturus) and Bai Shao (Radix Paeoniae Alba). Exemplar Formula: Si Ni San (Frigid Extremities Powder).

- Migraine headache: combine Chai Hu with Chuan Xiong (Rhizoma Ligustici Chuaxiong), Xiang Fu (Radix Peganum harmala).
Chai Hu (Radix Bupleuri)

(Rhizoma Cyperi) and Bai Shao (Radix Paeoniae Alba) to treat migraine headache caused by shaoyang fire attacking the head.

- Eye disorders: use it with Huang Qin (Radix Scutellariae), Zhi Zi (Fructus Gardeniae), Fang Feng (Radix Saposhnikoviae) and Jue Ming Zi (Semem Cassiae) to treat eye disorders due to Liver fire rising, characterized by eye redness, swelling and pain.

- Prolapse of internal organs: use Chai Hu with Huang Qin (Radix Scutellariae), Zhi Zi (Fructus Gardeniae), Fang Feng (Radix Saposhnikoviae), and Jue Ming Zi (Semem Cassiae) to treat eye disorders due to Liver fire rising, characterized by eye redness, swelling and pain.

- Jaundice: add Yin Chen Hao (Herba Artemisiae Scopariae), Da Huang (Radix et Rhizoma Rhei), and Zhi Zi (Fructus Gardeniae) to clear damp-heat attacking the head.

- Prolapse of internal organs: use Chai Hu with Sheng Ma (Rhizoma Cimicifugae) and Huang Qi (Radix Astragali) to raise yang and tonify qi. Exemplar Formula: Bu Zhong Yi Qi Tang (Tonify the Middle and Augment the Qi Decoction).

DOSE

3 to 10 grams. The maximum dosage of Chai Hu is 60 grams. Treatment of organ prolapse relies on only a small dosage (3 grams) to raise yang qi. Treatment of malaria, however, requires a larger dose (10 to 15 grams). Unprocessed Chai Hu has a stronger effect to ascend and disperse, and is commonly used to release the exterior and reduce fever. The vinegar-fried herb more effectively regulates Liver qi, and is commonly used to relieve hypochondriac pain, abdominal pain, and menstrual cramps.

CAUTIONS / CONTRAINDICATIONS

- Chai Hu has ascending and dispersing functions, so prolonged use or overdose may consume yin. Therefore, this herb should be used with caution in yin-deficient patients, those with yin-deficient fire, Liver yang rising, or Liver wind rising.

- Chai Hu should not be used for an individual having only an exterior syndrome but no interior symptoms or condition. Use of Chai Hu under these circumstances may lead the pathogenic factor inward, making the disease more difficult to treat.

CHEMICAL COMPOSITION

Triterpenoids (saikosaponin A, B, C, D, E; saikogenin F, G, E; saikoside), essential oils 0.06-0.16% (r-heptalactone, r-decalactone), carbohydrates, flavone, coumarin, organic acid.1,2

PHARMACOLOGICAL EFFECTS

- Analgesic and antipyretic: According to laboratory studies, essential oil, saikosaponin, and decoction of Chai Hu all have demonstrated marked analgesic and antipyretic effects. The analgesic effect was partially blocked with oral ingestion of atropine at 25 mg/kg or subcutaneous injection of naloxone at 0.26 mg/kg.3

- Sedative: Chai Hu and saikosaponin have both demonstrated a sedative effect. Oral ingestion of saikosaponin at 200 to 800 mg/kg has a marked sedative effect in mice. At 500 mg/kg, saikosaponin prolonged sleeping time induced by barbiturates.4

- Anti-inflammatory: Chai Hu reduces inflammation by decreasing capillary permeability caused by histamine and 5-hydroxy-tryptamine.5

- Hepatoprotective: Chai Hu has demonstrated hepatoprotective activity in laboratory animals, especially against carbon tetrachloride-induced liver damage.6

- Cholagogic: Chai Hu has a marked cholagogic effect, achieved by increased production and excretion of bile.7

- Antihyperlipidemic: Saiskupponin A and D have demonstrated marked effectiveness in reducing triglycerides and moderate influence in reducing cholesterol.8

- Immunostimulant: Chai Hu stimulates both humoral and cellular immunity in mice.9

- Antibiotic: Chai Hu has demonstrated an inhibitory effect against β-hemolytic streptococcus, Vibrio cholerae, Mycobacterium tuberculosis, leptospira, some influenza viruses, poliomyelitis viruses, and hepatitis viruses.10

CLINICAL STUDIES AND RESEARCH

- Common cold: According to one study, 666 patients with common colds were treated with an herbal formulation consisting of Chai Hu, Fang Feng (Radix Saposhnikoviae), Shen Pi (Perciparium Citri Reticulatae), Bai Shao (Radix Paeoniae Alba), Gan Cao (Radix Glycyrrhizae), and Sheng
Chai Hu (Radix Bupleurum)

Jiang (Rhizoma Zingiberis Recens). The patients received 12 grams of the herbal formulation three times daily. The rate of effectiveness was 79%.11

• Cough: In one study, 1,005 patients were treated with a preparation of Chai Hu. The etiology of cough included common cold, influenza, chronic bronchitis, pneumonia, and lung cancer. The effective rate was 85.5%.12

• Infectious hepatitis: Eleven patients with infectious hepatitis were treated with Chai Hu and Gan Cao (Radix Glycyrrhiza) at the dosage of 10 ml three times daily (equivalent to 15 grams of each herb per day). The dosage for children was adjusted accordingly. The overall results were satisfactory.13

• Liver cirrhosis: The combination of a Chai Hu and Gan Cao (Radix Glycyrrhiza) preparation has demonstrated preventative influence against liver cirrhosis in laboratory mice.14

• Hyperlipidemia: In one study, 86 patients with hyperlipidemia were treated with a herbal formula (3 grams of Chai Hu with Luo Han Gao (Fructus Momordicae) added as a flavoring agent) three times daily for 3 weeks per course of treatment. The study reported marked effectiveness in reduction of triglycerides.15

• Erythema: Thirteen patients with erythema were treated with 2 ml of Chai Hu injectable (equivalent to 4 grams of herb) twice daily for 10 days. The study reported good results in all patients.16

• Globus hystericus: According to one report, 25 patients with globus hystericus were treated with 2 ml of a Chai Hu preparation injected into Tiantu (CV 22) daily or every other day. After 4 treatments, 15 patients reported marked improvement, 6 reported moderate improvement, and 4 reported no response.17

HERB-DRUG INTERACTION

The following cases of herb-drug interaction are based on Xiao Chai Hu Tang (Minor Bupleurum Decoction), an herbal formula that contains Chai Hu as the main ingredient. Additional information is not available at this time whether Chai Hu, as a single herb, is associated with the same risk of not.

• Tolbutamide: It was demonstrated in one study that the formula Xiao Chai Hu Tang (Minor Bupleurum Decoction) reduced the bioavailability of tolbutamide after oral administration in rats. Xiao Chai Hu Tang was found to accelerate the initial absorption rate, reduce the area under the plasma concentration-time curve, and decrease the overall bioavailability of tolbutamide. The mechanism of interaction was not related to hepatic metabolism.18

• Ofloxacine: In an open, random-crossover investigation study with seven volunteers, a single dose of ofloxacine and a one-week dose of Xiao Chai Hu Tang (Minor Bupleurum Decoction) were given concurrently. Using high-performance liquid chromatography to evaluate the bioavailability of ofloxacine, it was determined that there is no significant effect on the rate or extent of bioavailability of ofloxacine when given concurrently with Xiao Chai Hu Tang.19

• Interferon: It has been reported that increased risk of acute pneumonitis may be associated with use of interferon, Sho-saiko-to [Xiao Chai Hu Tang (Minor Bupleurum Decoction)], or both in combination. Among patients with chronic hepatitis or liver cirrhosis, the frequency of drug-induced pneumonitis was 0.5% in those given only interferon-alpha, 0.7% in those given only Sho-saiko-to, and 4.0% in those given both interferon-alpha and Sho-saiko-to. The herbs have not been shown to injure the lung tissues, but may over stimulate the neutrophils to release granulocytes elastase and oxygen radicals, which subsequently damage lung tissue. The fibroblasts that repair the damaged tissue may increase the risk of pulmonary fibrosis.20,21

TOXICOLOGY

Chai Hu has very low toxicity. The LD<sub>50</sub> in mice is 1.19 g/kg via intraperitoneal injection for essential oil of Chai Hu, and 1.906 g/kg for saikosaponin.22

SUPPLEMENT

There are two types of Chai Hu:

• 北柴胡 (Chai Hu (Radix Bupleurum Chinenis)), harvested in northern China, is generally used as the standard source for Chai Hu. It has an excellent ability to disperse stagnation and treat Liver qi stagnation accompanied by heat.

• 南柴胡 (Nan Chai Hu (Radix Bupleurum Scorzonerae-folium)), harvested in southern China, has a milder overall function.

AUTHORS’ COMMENTS

Optimal treatment of headache requires use of channel-guiding herbs to deliver the therapeutic effect of the herbs to the affected area. The following is a list of the commonly used channel-guiding herbs:

• Taiyang channels: Qiang Huo (Rhizoma et Radix Notopterygii)  Shaoyang channels: Chai Hu (Radix Bupleuri)  Yangming channels: Bai Zhi (Radix Angelicae Dahuricae)  Taiyin channels: Notopterygii (Rhizoma et Radix Ligustici Chuanxiong), Qiang Huo (Rhizoma et Radix Notopterygii)  Shaoyin channels: Xi Xin (Herba Asari)  Jueyin channels: Wu Zhu Yu (Fructus Evodiae)
Chai Hu (Radix Bupleuri)

Notopterygii), Bai Zhi (Radix Angelicae Dahuricae), and Gao Ben (Rhizoma Ligustici) all treat headaches. According to Dr. Li Shou-Shan, the differences between these herbs are as follows:

• **Chai Hu** treats temporal headaches.
• **Chuan Xiong** is most effective for headaches related to menstruation.
• **Qiang Huo** is more specific to occipital headaches.
• **Bai Zhi** focuses on frontal headaches.
• **Gao Ben** is best for vertex headaches.

**References**

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