

# Exploration on Teaching Methods of TCM Pharmacology Course

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**Abstract:** Under the guidance of TCM theory, TCM pharmacology is a discipline that uses modern scientific methods to study the law of interaction between TCM and the body and clarify the mechanism of TCM prevention and treatment of diseases. TCM pharmacology is an interdisciplinary subject combining traditional medicine and modern medicine. The content is complicated, the knowledge points are many, the logic is poor, the students are afraid of difficulties seriously, and the learning enthusiasm is not high. In order to stimulate students' interest in learning, effectively improve the teaching quality, and achieve the teaching purpose of dual-innovation professionals, this paper proposes the bridging teaching method for the first time, and expounds the specific process and characteristics of the bridging teaching method with examples. Through the preliminary teaching practice, it is found that the bridging teaching method can significantly improve students' learning interest and learning efficiency. Bridge method teaching is a beneficial exploration of the teaching method of TCM pharmacology, and it is worth popularizing and applying.

**Keywords:** Pharmacology of Chinese medicine; Teaching reform; Bridge method teaching

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## Fund Project:

Shaoxing University Key Professional Project (SXSZY1905); Zhejiang A & F University and Yang College Curriculum Ideological and Political Demonstration Course Construction Project (JYSZSFK202110)

## 1. Existing teaching methods and characteristics of TCM pharmacology

At present, the innovative teaching methods of TCM pharmacology include problem-based learning (PBL) teaching method , case-based learning (CBL) teaching method and flipped classroom online (FC) teaching method . PBL teaching method is a problem-based, student-oriented and teacher-oriented heuristic teaching method. In the course, the teaching activities are carried out according to the process of asking questions, searching for information, group discussion and searching for answers. In terms of teaching effect, PBL teaching is helpful to cultivate students' ability of active learning, independent thinking and innovation, but there may be problems that take too much time and do not discuss deeply. CBL teaching method is a teaching method that introduces classic cases in the field of traditional Chinese medicine to students, so as to arouse students' interest in the study of traditional Chinese medicine pharmacology to achieve the teaching purpose. In the teaching process, teachers select cases with typical pharmacological characteristics and clinical drug value. In terms of teaching effect, the advantage of CBL teaching method lies in guiding students to think about the characteristics of drugs used to treat clinical diseases, memorizing relevant knowledge points, and stimulating students' enthusiasm. However, CBL teaching method requires students to consult relevant literature and books in combination with diseases after class, which increases the learning task. FC teaching method is a new teaching mode which combines the advanced multimedia information technology with the traditional teaching content. The advantage of FC teaching method lies in the purpose of cultivating students' ability to think independently, acquire knowledge and process information independently. However, due to the limitations of students' initiative, number of students, learning time and other factors, the teaching effect is difficult to be really improved.

## 2. Bridge teaching method

The bridging teaching method connects the knowledge points of TCM pharmacology and builds a knowledge frame system

to communicate the understanding and treatment of TCM indications by traditional Chinese and western medicine. In the course of teaching, first of all, the main indications, syndromes, pathogenesis, efficacy and medicinal properties of various traditional Chinese medicine are explained in turn according to the logical relationship. Secondly, by analogy, the author explains the corresponding diseases, symptoms, etiology, therapeutic drugs, pharmacological action and mechanism of modern medicine. Finally, the main pharmacological action, mechanism of action and clinical application of this kind of Chinese medicine were extracted. In terms of teaching effect, the bridge method can make students clearly understand and distinguish the relationship between TCM syndrome, pathogenesis, syndrome and efficacy and modern medicine's disease, cause, symptom, pharmacological action and mechanism, and identify their similarities and differences. In addition, the bridge method provides a clear path for the study of TCM pharmacology, which helps students to understand the internal connection of various knowledge points of TCM and Western medicine, identify the commonness and individuality of various TCM, grasp the pharmacological effects of various TCM as a whole, improve learning interest, and cultivate the thinking of integrating TCM and Western medicine.

### **3. Characteristics and advantages of bridging teaching method**

#### **3.1 The bridge method is helpful to grasp the pharmacological effects of various Chinese medicines as a whole**

By building the framework of TCM pharmacology knowledge system through the bridge method, it provides a clear learning and thinking path for learning, and helps students to master the basic contents of TCM pharmacological action, mechanism of action and clinical application as a whole. For example, in the course of explaining antipyretic drugs, symptoms and treatment drugs are explained in combination with actual cases such as influenza and novel coronavirus infection. First of all, it points out that the syndromes of the surface syndromes are chills, fever, head and body pain, nasal congestion, cough, etc., which are similar to the initial symptoms of modern medicine cold, influenza, and infectious diseases. Secondly, the pathogenesis of superficial syndrome, influenza and upper respiratory tract infection were analyzed respectively. The pathogenesis of superficial syndrome is the suppression of wei qi caused by external evil invading the surface of the muscle. The cause of infection of influenza and upper respiratory tract infection is bacterial or viral infection, while the internal cause is low immunity. Finally, according to the above analogy and case analysis, the common pharmacological effects of antipyretic drugs are antibacterial, antiviral, antipyretic, sweating, analgesic and sedative, cough, phlegm, asthma and immune regulation.

#### **3.2 Bridging teaching method is helpful to stimulate students' interest in learning**

Learning interest is the key to make students maintain long-term effective learning, and it is a necessary condition to optimize the quality of teaching. In the process of bridging teaching, according to the key points and difficulties required by the teaching syllabus, the fulcrum design problem, and gradually guide students to think and stimulate their interest in learning. Teachers complete the teaching in the process of bridging, and students complete the learning in the process of thinking. Taking tranquilizers as an example (Figure 1), first of all, ask the question, What are the characteristics of the syndromes of uneasiness that are similar to those of the diseases? What is the pathogenesis? What are the effects and properties of tranquilizers? Then, the corresponding syndromes of uneasiness were uneasiness, irritability, convulsion, vacuity and restlessness or forgetfulness. The pathogenesis is hyperactivity of heart fire or Yin deficiency of blood; The effect is to calm the mind; There are two kinds of pathologic tranquilizers: heavy tranquilizer and heart nourishing tranquilizer. Based on this, the link of traditional Chinese medicine knowledge logic system was established. And then, what are the syndromes of uneasiness similar to? What causes it? What are the main drugs used to treat this disease? What are the pharmacological effects and mechanisms of action? Further establishing the link of modern medical knowledge system, the syndromes of unquiet syndrome are similar to the symptoms of sleep disorders in modern medicine; Symptoms include insomnia, depression and convulsions; The main cause was disorder of monoamine neurotransmitter in brain. The therapeutic drugs are sedative and hypnotic drugs, antidepressants, anticonvulsants and anti-aging drugs. The pharmacological effects are sedation and hypnosis, anticonvulsant, brain protection and improvement of learning and memory. The mechanism of action involves central inhibition and enhancement of 5-hydroxytryptamine and acetylcholine transmitters in the brain, regulation of gamma-aminobutyric acid/glutamic acid, aspartate neuroamine transmitters, anti-oxidation, and protection of nerve cells. Finally, the common pharmacological effects of tranquilizing drugs are sedation and hypnosis, anti-convulsion, brain protection, and improvement of learning and memory. The psychotropic drugs also involve anti-myocardial ischemia, protection of myocardium and improvement of immune function. As mentioned above, in the process of bridging teaching, combining with disease examples, through the analogy analysis of different theories of traditional Chinese and Western medicine on the evidence of disease pathogenesis and treatment drugs, students can be inspired to think, broaden their knowledge and stimulate their interest in learning.

#### **4. Analysis of practical results of bridging teaching method in TCM pharmacology course teaching**

The teaching effect evaluation of bridging method consists of two parts: written test results and questionnaire results (Table 1). Firstly, the paper analyzed the test results of the two teaching groups and compared the influence of different teaching modes on the teaching effect of TCM pharmacology. Secondly, through questionnaire survey, we understand the influence of bridging teaching method on students' learning interest, integrated thinking of traditional Chinese and Western medicine, integration ability, independent learning ability and logical analysis ability. A total of 60 questionnaires were sent out, all of which were recovered and valid.

#### **5. Conclusion**

Traditional Chinese Medicine pharmacology is the core course of traditional Chinese medicine with distinctive characteristics. The bridging method closely integrates the theory of traditional Chinese medicine with the theory of modern medicine, and fully reflects that traditional Chinese medicine pharmacology is the discipline characteristic of traditional Chinese medicine and Western medicine. In the bridging teaching process, students are guided to think positively, integrate the knowledge of other disciplines, promote the understanding and memory of the subject content, stimulate students' interest in learning, enable students to understand and cultivate the thinking of integrating traditional Chinese medicine and Western medicine in the thinking process, improve the integrity and innovation ability, and realize the cultivation of dual-innovation Chinese pharmacy talents with solid professional foundation, innovative consciousness and strong practical ability. However, the bridging method teaching is still in the exploratory stage, which is a challenge for teachers and puts forward higher requirements for teachers' clinical pharmacology knowledge reserve. In the future, continuous efforts should be made to broaden the scope of knowledge and enrich the content and level of integrated Chinese and Western medicine.

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