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Teaching reform and exploration of pharmacology under the background of "double first-class" construction

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Abstract: Pharmacology is an important professional basic course in medical colleges and universities. With the rapid development of medical research, it is imperative to reform the traditional teaching philosophy and teaching methods of pharmacology. Based on the new demand of medical education and the new characteristics of medical education under the background of "double first-class" construction, this paper reforms the teaching content, teaching philosophy and teaching methods in the teaching process of Pharmacology, constructs a teaching reform plan that is student-centered, aims at scientific research innovation, and focuses on cultivating students' independent learning and learning interest, so as to promote the integration of science and education, It will help to cultivate a large number of high-quality medical talents for health care.

Keywords: "Double First-Class" initiative; Pharmacology; Reform in education; Medical education.

1. Introduction

On October 24, 2015, the State Council issued the Overall Plan for Overall Promoting the Construction of World class Universities and First class Disciplines [1], which clearly proposed to accelerate the construction of a number of world class universities and first class disciplines (referred to as “double first class”), improve China's education development level, enhance the national core competitiveness, and realize China's leap from a large country of higher education to a strong country of higher education. Medical education is an elite education and an important cornerstone for the development of health care. Pharmacology is a compulsory professional basic course for medical undergraduates. It focuses on cultivating students' scientific research thinking methods, design methods and logical analysis methods. It is an important bridge discipline to undertake medicine and pharmacy. Under the background of "double first-class" construction, pharmacology curriculum also faces new opportunities and challenges.

The author analyzed the current situation and problems in the teaching of pharmacology, combined with the new demands of medical education and the new characteristics of medical education under the background of "double first-class" construction [2], put forward the strategy of educational innovation and reform, made full use of the advantages of modern Internet teaching, optimized the teaching content, enriched the teaching methods and teaching means, updated the teaching philosophy, adjusted the assessment methods, with a view to improving the teaching effect of pharmacology and improving the teaching quality, Assist the construction of "double first-class" disciplines of the University.

2. Analysis of the current situation of pharmacology teaching

2.1. Old teaching content

The textbook of Pharmacology was updated slowly, and there was no obvious difference between the textbooks of different publishers. The drugs introduced in the textbook were mainly classic drugs. Some drugs were rarely used or even no longer used, but the textbook was not updated in time and new drugs were not included in it in time. Pharmacology covers seven aspects, including internal processes, mechanisms of action, pharmacological effects, clinical applications, drug interactions, adverse reactions and contraindications. In the actual teaching process, it mainly focuses on the first four aspects. Compared with other disciplines, the content is boring, difficult to understand and remember, and the students' interest is not high. However, drug interactions, adverse reactions and contraindications are rarely involved or even passed by during teaching, which makes students have certain limitations in their future work.

2.2. Monotonous teaching methods

At present, most pharmacology courses adopt the traditional teaching method, that is, teachers explain the drug structure, pharmacological effect, clinical application and possible adverse reactions in turn according to the book during teaching. This kind of teaching method makes students feel very difficult in the learning process, and it is difficult to raise interest in active learning. Some teachers did not consider how to inspire students when preparing lessons, and did not pay attention to mobilizing students' enthusiasm in class. Students had low enthusiasm for classroom participation, less thinking, less speaking, and less discussion. The classroom atmosphere was dull, and students lacked understanding of what they learned. They were prone to have wrong understanding and memory of related drugs, which led to their inability to flexibly apply the knowledge learned to

clinical cases.

2.3. Lagging teaching means

At present, most pharmacology courses adopt multimedia teaching, but some teachers simply use PPT, mechanically copy and paste knowledge points in the textbooks into multimedia, and publicize the subject according to the book. Most of the knowledge is about traditional knowledge points in textbooks, traditional drugs, in order to consider the universality and practicality of the clinical application of drugs in textbooks; Some teachers don't often use multimedia because of trouble. They just use it to decorate when they have public classes.

2.4. Single assessment method

At present, the assessment of pharmacology is mainly based on examination papers. In order to cope with the examination, most students choose to recite suddenly before the examination. Therefore, the mastery of knowledge is only superficial and does not achieve a deep understanding. From the assessment results, although it seems that the students have completed the learning of the course, they lack the systematic mastery of knowledge, the subjective initiative of learning, and the ability to truly exercise their innovative thinking and experimental ability.

3. New Path of Pharmacology Teaching Reform under the Background of "Double first-class" Pharmaceutical Discipline Construction

3.1. Update and improve the teaching content

On the one hand, according to the national standards for medical students' teaching quality, the research team, in combination with the talent training program of the University, reasonably formulated the teaching plan and syllabus, combined with the characteristics of students and pharmacology courses, formulated the learning objectives of pharmacology courses and the teaching objectives of each course, discussed the teaching content, and listed the key points and difficulties. In the teaching process, we should timely understand the application information of new clinical drugs, and pay attention to the teaching of adverse drug reactions, contraindications and drug interactions, so as to expand students' vision and improve their professional identity.

On the other hand, in combination with the frontiers of disciplines and scientific research progress, we should pay attention to the connection between basic and clinical research, and use scientific research to feedback teaching, that is, according to the teaching content, the research projects, scientific research achievements, scientific research experience, etc. of teachers related to the curriculum should be appropriately interspersed in the classroom teaching process, so that students can understand the scientific research work around them, and some undergraduate scientific research training projects College students' innovation projects and graduation design projects are pushed to students as supplementary materials to enrich teaching content and improve students' interest in learning.

3.2. Reform teaching methods

Multiple teaching modes are integrated in teaching, such as flipped classroom and problem based learning (PBL) [3], to fully mobilize students' internal motivation and enthusiasm for learning, turn passive acceptance into active learning, strengthen students' understanding and analysis of knowledge learned, further improve learning efficiency and effect, and make them become the master of learning, In order to cultivate the thinking ability and efficient learning ability of medical students. For example, when teaching a chapter of drugs, you can first ask questions according to the characteristics of the disease treated by the drug, and then divide the students into groups. Group members review books, literature and network resources to summarize and refine the answers. After group discussion, select representatives to answer the questions. After all the groups have answered, the teacher will summarize, supplement the deficiencies and correct the mistakes. This kind of teaching method can enable students to fully participate in the classroom. At the same time, in the warm discussion, the classroom atmosphere becomes more active, and the enthusiasm of teachers and students is fully mobilized. In some chapters, case-based learning (CBL) can be introduced [4], and typical cases can be called out from the case base, from which common characteristics and distinctive characteristics of a disease can be summarized. Diseases can be classified and corresponding therapeutic drugs can be given according to these classifications, so as to guide students to combine theory with clinical application, flexibly master pharmacological knowledge, and improve students' ability to comprehensively apply knowledge.

3.3. Reasonably use online resources

Make rational use of network resources and multimedia means to organize student centered active learning. In the teaching process, Internet teaching tools shall be fully used, and hybrid teaching shall be carried out in combination with online teaching platforms such as Rain Class, China Moose, Superstar Learning Link, Wisdom Tree and offline methods. Before class, students shall preview videos and discuss problems online, teachers shall issue in class test questions for examination, and students shall practice and consolidate after class [5-6]. Teachers use online and offline hybrid teaching to activate the classroom atmosphere and strengthen process learning through discussion, testing and other forms, which is conducive to improving students' enthusiasm for learning and participation in the classroom, and also helps teachers analyze students' learning situation multi-dimensionally, adjust teaching methods and solve difficult problems in a timely manner [7]. In addition, through the extracurricular teaching platform, teachers can design questionnaires to know the knowledge reserves of learners in advance, help design targeted teaching activities to meet personalized needs in the later stage, and fully improve the online and offline teaching effect [8].

3.4. Change teaching ideology

Change teachers' teaching ideology, and organically integrate curriculum ideology and politics into pharmacology curriculum teaching. With the rapid development of modern society, we are more eager than ever for high-end talents with excellent knowledge and skills and high ideological quality [9-10]. Under the background of "double first-class" construction and curriculum ideological and political education, the research team combed the specific curriculum ideological and political objectives to be achieved in each chapter of pharmacology on the basis of the previous basic goal of improving students' learning ability, combined with

the teaching content, identified the integration point of pharmacology ideological and political content, selected appropriate ideological and political materials and appropriate carrier channels, and integrated healthy China strategy, professional ethics education Love life education, lifelong learning education, etc., so as to achieve the ultimate goal of ideological and political construction of pharmacology curriculum from “simple in mind” to “natural in mind” to “subtle in practice” [11].

3.5. Enrich assessment methods

Course assessment is an important means to evaluate students' learning achievements and test the teaching effect. At present, the course assessment is mainly based on the final examination, supplemented by a small number of usual scores. There are problems such as the proportion of process assessment is too small, and the assessment mode is single [12]. Therefore, in order to improve students' actual mastery and application ability of knowledge, after the reform, the proportion of final examination scores will be reduced to 60%, the proportion of classroom test scores will be increased to 10%, and the average homework score will be 10%. The average performance will be comprehensively evaluated by means of homework, classroom discussion, small papers, etc. The experimental operation will be 20%, and the experimental performance will be comprehensively evaluated according to the experimental operation and experimental report. This assessment method combines the process evaluation with the final evaluation, which can strengthen the students' concept of serious learning, fully mobilize their enthusiasm for learning, and improve the teaching quality of "pharmacology".

4. Summary and outlook

As a bridge course between basic medicine and clinical medicine, pharmacology plays an important role. Under the background of "double first-class" construction, the new demand of medical education and the new characteristics of medical education, how to combine professional knowledge and curriculum thinking and politics, let medical students actively learn this course, maximize the internal potential of students' learning, promote the reform and development of the "pharmacology" curriculum, cultivate new socialist talents who are brave in exploration and innovation, etc., exploring the path of curriculum reform still has a long way to go.

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