

Discussion on the new teaching ideas of traditional Chinese medicine for promoting vascular regeneration in the treatment of peripheral vascular diseases

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Abstract: In recent years, research on the effects of traditional Chinese medicine on angiogenesis has become a hot topic. Although the basic research of angiogenesis has gradually deepened, clinical research needs to be strengthened, especially how to teach this method to students in order to achieve good technical inheritance. Based on this, this paper explores the teaching effects of different teaching modes in the teaching of peripheral vascular diseases. Interns were divided into observation group and control group, and the control group was taught by traditional theory teaching mode (LBL); The observation group adopts a theoretical teaching combined case-oriented (CBL) teaching model. The results show that traditional teaching combined with CBL teaching mode can significantly improve the clinical teaching effect of vascular surgery, improve students' practical ability and analytical ability.

1. Introduction

Angiogenesis belongs to the category of “green veins” in Chinese medicine. Vascular regeneration is mainly reflected in four aspects: Firstly, the blood vessels are expanded on the basis of the original; The second is to reopen the locked blood vessels; The third is new angiogenesis; The last is the occluded blood vessels are re-canalized. Although there is no record of the names of peripheral vascular diseases in the Chinese medical literature, the unique symptoms such as cold limbs, lameness, pain, and gangrene have been recorded in the *Neijing*, such as “pulse”, “odd disease”, and “dislocation.” The cause of evil collaterals and collaterals is that “the shackles are in the foot, the qi is not in the air, the blood in the veins is condensed and left behind”, and “the blood can be not be emptied”, which indicates that Chinese medicine laid its foundation two thousand years ago. Etiology and pathogenesis theory [1]. However, this disease has been studied in modern medicine, and it has been comprehensively developed and significantly improved in terms of etiology analysis, pathological research, diagnostic methods, therapeutic drugs, surgery and auxiliary examinations. The clinical treatment is still based on vasodilation, anticoagulation and surgical treatment. The results can be not change the development of the disease, so the recurrence rate and disability rate of the disease is still high [2]. Traditional Chinese medicine has its unique advantages and long history in the treatment of peripheral vascular diseases. After thousands of years of clinical practice, it has formed a relatively complete treatment method and exact clinical efficacy.

The above situation indicates that general education and professional education on the knowledge of peripheral vascular diseases among clinical medical students and interns are imminent; At the same time, it also puts more stringent requirements on the professional knowledge and clinical thinking ability of clinical medical students. However, in the practice of traditional surgical teaching, the peripheral vascular disease department accounted for a small proportion, and the clinical teaching and professional training hours and content were few. How to strengthen the cultivation of knowledge and skills in vascular diseases around medical students in such an environment is one of the important issues in the cultivation of medical students.

Therefore, in the practice of clinical teaching, this article uses the traditional lecture-based learning (LBL) to enhance the popularization of professional knowledge. At the same time, this study also used the clinical case-oriented learning (CBL) to explore the teaching effects of different teaching modes for interns in peripheral vascular diseases.

2. Mechanism and Research of Promoting Angiogenesis in TCM

In addition to studies focusing on vascular regeneration in the cardiovascular and cerebrovascular fields, microsurgery and orthopedics also attach importance to angiogenesis. In order to ensure the survival rate of postoperative repair tissue, the quality of many repair operations is very high, but the results of tissue regeneration or repair are not ideal. For example, after the repair of the composite bone flap, the blood circulation disorder causes the flap to have a low survival mass or a non-healing of the bone flap [3]. The core of these problems is how to promote tissue angiogenesis. Few people in the clinic have linked traditional medicine to the field of microsurgery. With the deepening of research on cerebrovascular and cardiovascular aspects of traditional Chinese medicine, micro-surgery have also taken advantage of traditional medicine in microsurgical angiogenesis. In recent years, the application of single-flavor, compound Chinese medicine or its active ingredient extracts in the repair of nerve, blood vessel, bone, tendon and skin tissue after microsurgery has been widely carried out.

“The birth of the new” is an important rule of law in Chinese medicine. This field has been discussed in detail in the past. However, most of them focus on the research of prescriptions and prescriptions, and there is no intuitive understanding and explanation. With the improvement of the theoretical system of traditional Chinese medicine, in recent years, the research in this field has gradually shifted from the functional “sputum, blood circulation” to the attempt to uncover the internal causes of the disease's improvement and cure. The concept of “bloody” has gradually penetrated into trauma orthopedics and microsurgery [4]. One of the important aspects of TCM surgery's valuable experience in the process of “removing carrion” to promote normal tissue regeneration is that surgery itself is one of the means of “squatting”. The role of surgery is “remove erythema”, and the purpose of surgery is to deepen the “new birth.” It can be seen that “removing ecchymoses and new ones” is consistent with the concept of microsurgical treatment, aiming to promote the regeneration of postoperative tissues [5]. Through the establishment of animal vascular repair model, the effects of Fuyuan Huoxue Decoction on various morphological and vascular structures, blood biochemistry, related protein or gene expression, physiological function and other indicators after vascular and neurosurgical repair were observed. Furthermore, from the perspective of objective efficacy, systematically explore the deep concept and relationship between ecchymosis and “new blood, veins and objects” [6].

In the current research on the mechanism of angiogenesis of peripheral vascular diseases in Chinese medicine, this study suggests that angiogenesis may be through the enhancement of the expression of VEGF, TGFβ, bFGF, PECAM, PDGF, etc., which promotes angiogenesis, thereby promoting angiogenesis. From the existing literature, the prescriptions that have an effect on the angiogenesis of ischemic peripheral vascular disease are related to Yiqi Huoxue Huayu and Buxu Yin and Fuxue. On the basis of TCM syndrome differentiation and treatment, more research on the rule of law should be actively carried out. Expand the scope of research on angiogenesis in Chinese medicine to develop special Chinese medicines that promote angiogenesis in ischemic peripheral vascular diseases.

3. Research on Experiential Teaching Method of Promoting Vascular Regeneration in Traditional Chinese Medicine

3.1 Materials and methods

3.1.1 General Information

In this study, a student who was in clinical practice in the Department of Peripheral Vascular

Disease from July 20 to May 2019 in a hospital was selected as a research object, with a total of 112 students. According to the internship batch, they were randomly divided into the control group and the observation group, with 56 students in each group. Baseline data for the two groups of interns were comparable (Table 1). The control group used the LBL teaching model in the form of traditional theoretical teaching and practical teaching lectures. While conducting the LBL teaching mode, the observation group selected appropriate cases and adopted a case-oriented CBL teaching model. The teaching teachers are all senior doctors and deputy chief physicians. They are familiar with the key content according to the syllabus and conduct collective theory preparation and practice.

Table 1 Comparison of basic data of students in the experimental group and the control group($n, \bar{x} \pm s$)

	Control group(LBL)	Experimental group(CBL)	P Value
Gender (Male Female)	30/26	33/23	0.39
Age	24.18 \pm 1.59	24.51 \pm 2.06	0.48
Education (Bachelor / Master)	27/29	31/27	0.38

3.1.2 Experimental teaching methods

Control group: The traditional LBL teaching mode was adopted. Firstly, according to the content of the syllabus, the internship students will be given key content and knowledge points; Then, the teacher will lead the students to carry out case observation, and teach the key content of the classification, diagnosis, differential diagnosis and treatment options of the relevant diseases; Finally, the summary of the teaching content is summarized and questions are raised for the students.

Observation group: LBL combined with CBL mode for teaching. Because the Department of Peripheral Vascular Diseases has less classroom content in clinical major surgery, in addition to the teaching of regular LBL teaching content, students in the observation group also need to be taught by the teacher after completing the lecture, according to the specific clinical case. Giving a summary. At the same time, it is necessary to set key issues related to diagnosis, differential diagnosis, treatment choice and other related content according to the problems that may exist in clinical practice; The designed case questions and questions are then given to the interns. During the experiment, students are required to consult the teaching books and related materials according to the specific cases to answer the layout questions [7]; Then, with the teacher to take the specific case as the entry point, the teaching of disease-related knowledge points will be carried out. The experiment requires each student to actively speak, express opinions, and jointly complete the teaching practice tasks. Finally, the teacher will carry out case analysis and difficult problem solving, and put forward the key knowledge points of vascular disease, so that the interns have a more comprehensive understanding of disease knowledge and a deeper impression.

3.1.3 Evaluation criteria of the experiment

The evaluation of two different teaching modes adopts the following two evaluation methods.

(1) Theoretical assessment: All students complete the assessment of the theoretical knowledge of the subject, and the theoretical score ≥ 90 is divided into very excellent; 80 to 89 is divided into excellent; 70~79 is divided into qualified; <70 is unqualified. The excellent rate refers to the percentage of excellent and excellent students; Pass rate is the percentage of outstanding, excellent and qualified students.

(2) Practice assessment: the teachers in the teaching group will assess the diagnostic analysis ability and processing ability of each student according to the specific case, and investigate the accuracy of the diagnosis and differential diagnosis, the feasibility of the treatment plan, etc.; Finally, the score is given by the teaching group of teacher Grades. The theoretical score ≥ 90 is divided into very excellent; 80 to 89 is divided into excellent; 70~79 is divided into qualified; <70 is unqualified. Calculate the excellent and pass rate of each group of students.

3.1.4 Statistical analysis of data

All data were included in the SPSS 22.0 statistical analysis software for summary analysis. Baseline data for students in the experimental and control groups were analyzed by χ^2 test and two-sample t test. The experimental test scores and case analysis ability scores of the experimental group and the control group were tested by χ^2 test, $P < 0.05$ was considered statistically significant.

3.2 Experimental results and analysis

The theoretical evaluation results of the students in the experimental group and the control group are shown in Table 2. The excellent rate of excellent performance (very excellent + excellent) of the observation group students in the CBL teaching mode was 80.35%; This data was significantly higher than the control group (50.00%), $P = 0.04$. There was no significant difference in the total qualified rate between the experimental group and the control group ($P > 0.05$).

Table 2 Comparison of theoretical assessment scores between students in the experimental group and the control group [n, (%)]

	Very excellent	Excellent	Qualified	Unqualified	Excellent rate	Pass rate
Experimental group	25	20	10	1	80.35	98.21
Control group	14	14	26	2	50.00	96.43
P value	/	/	/	/	0.041	0.034

The results of the two groups of students' practical analysis ability assessment are shown in Table 3. Through the teaching practice of CBL teaching mode, the case analysis and processing ability of the observation group students were significantly higher than those of the control group. The overall excellent and good rate (53.57% vs. 23.21%) and the pass rate (96.43% vs 69.64%) of the observation group were significantly higher than those of the control group ($P < 0.05$).

Table 3 Analysis of the results of the practice analysis of the experimental group and the control group [n, (%)]

	Very excellent	Excellent	Qualified	Unqualified	Excellent rate	Pass rate
Experimental group	10	20	24	2	53.57%	96.43%
Control group	6	7	26	17	23.21%	69.64%
P value	/	/	/	/	0.029	0.031

In recent years, with the changes in dietary spectrum and disease spectrum of Chinese residents, the incidence of vascular diseases has increased year by year. At the same time, many new advances have been made in the treatment of vascular diseases. The peripheral vascular disease department has also been independently established in the large surgical system in many hospitals. On the contrary, at present, the teaching part of the peripheral vascular disease department not only occupies a relatively low level in the teaching of surgical theory, but also has the status quo in the practice of surgical practice, which is not subject to the attention of teachers and students. This poses a major challenge to the cultivation of residents. Therefore, under the existing teaching mode, the professional interns of the peripheral vascular disease department generally have the problem that the basic knowledge is not reliable and the practice knowledge is blind. We use the traditional multimedia teaching mode (LBL teaching mode) to enhance the teaching of basic knowledge for the teaching status of peripheral vascular diseases. At the same time, a case-oriented teaching model (CBL) is used to teach interns in peripheral vascular diseases. The results show that the traditional LBL teaching mode combined with the CBL teaching mode is an ideal teaching mode for the teaching of peripheral vascular diseases.

4. Conclusion

In the teaching practice, give full play to the interaction between the teaching team teachers and students, and quickly find the intern's knowledge blind zone. This study adopts a case-oriented CBL teaching-based joint teaching model based on the traditional LBL teaching model. This can effectively make up for the shortcomings of insufficient teaching and understanding in the peripheral vascular disease department in surgical teaching, and let students have more knowledge and mastery of the knowledge of peripheral vascular diseases in a limited time. At the same time, this also puts higher requirements on teaching teachers, and requires teachers to be skilled in summarizing professional knowledge points and carry out targeted case teaching and discussion. Through typical cases, knowledge points are presented with representative questions to stimulate students' interest in learning. At the same time, this joint teaching model also puts forward higher requirements for students, requiring students to read through the knowledge points, to achieve point-to-face combination and full understanding [8]. This has similar effects to other teaching practices. In summary, according to the current teaching situation, we believe that the LBL traditional mode combined case-oriented CBL teaching model is more in line with the teaching status of the peripheral vascular disease department in the practice of surgical teaching. With the popularization of teaching knowledge and the emphasis of teachers and students on the new teaching model, there will be more excellent teaching mode combinations in the future to adapt to the changes in future teaching practice, which is also the direction of our future efforts.

In summary, according to the current teaching situation, we believe that the LBL traditional mode combined case-oriented CBL teaching model is more in line with the teaching status of the peripheral vascular disease department in surgical teaching practice. With the popularization of teaching knowledge and the emphasis of teachers and students on the new teaching model, there will be more excellent teaching mode combinations in the future to adapt to the changes in future teaching practice, which is also the direction of our future efforts.

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