Effectiveness of PBL Combined with Seminar Teaching Method in Teaching Clinical Internship in Hematology

Feifei Wu
The First Affiliated Hospital of Zhengzhou University, Zhengzhou, Henan, China

Abstract: Objective: To explore the application effect of PBL combined with Seminar teaching method in hematology clinical internship teaching. Methods: 116 medical students who were interned in the Department of Hematology of the First Affiliated Hospital of Zhengzhou University from September 2023 to September 2024 were selected and grouped with reference to the randomized numerical table method, of which 58 were in the control group (traditional teaching) and 58 were in the observation group (PBL combined with Seminar teaching method). After 24 hours of internship teaching, the students were tested on theoretical knowledge, practical skills and comprehensive analytical ability, and filled in the self-developed teaching satisfaction questionnaire to evaluate the recognition of the teaching method, and the test scores of the two groups and the students' recognition of the teaching method were statistically compared. Results: The examination scores (theoretical knowledge, practical skills and comprehensive analysis ability) of the observation group were higher than those of the control group; the total recognition of the observation group was higher than that of the control group, $P<0.05$. Conclusion: The use of PBL combined with Seminar teaching method in the teaching of clinical internship in hematology is conducive to improving the performance of the students and enhancing their recognition of the teaching method.
***Keywords*:** hematology; clinical placement teaching; PBL; seminar

1. Introduction

With the innovation of educational concepts, Problem-based learning (PBL) and Seminar teaching method have been attracted attention, PBL teaching method is problem-oriented, creates realistic clinical problem situations, guides students to actively explore the solutions, and develops clinical thinking and independent learning ability [1].Seminar teaching method focuses on group discussion, encourages students to freely exchange ideas and work together. Seminar teaching method focuses on group discussion, which encourages students to freely exchange their views and work together to overcome complex academic problems, and effectively improves critical thinking, teamwork, and communication and expression skills [2]. Based on this, this paper aims to explore the application effect of PBL combined with Seminar teaching method in hematology clinical internship teaching, and is now based on the specific content of this study as follows.

2. Information and methodology

2.1 General information

116 medical students who were interned in the Department of Hematology of the First Affiliated Hospital of Zhengzhou University from September 2023 to September 2024 were selected and grouped with reference to the method of randomized numerical table, of which 58 were in the control group to receive the traditional teaching method, and 58 were in the observation group to receive the PBL combined with Seminar teaching method. The male-to-female ratio was 31:27 and 30:28 in the observation and control groups, respectively; the ages ranged from 22 to 25 and 22 to 26, respectively; and the mean ages were (23.55±0.63) and (23.62±0.65) years. There was no statistically significant difference between the gender composition and age of the interns in the two groups ($P>0.05$), so the results of this study were not affected by the underlying data and were comparable. Inclusion criteria: those whose education was not less than full-time undergraduate; those who entered our hospital for the first time; those whose previous study base was compatible, etc. Exclusion criteria: those with communication barriers or those who did not recognize the study protocol; those who transferred to the hospital for study in the middle of the study; those who were on leave of absence during the internship period, etc.

2.2 Methodology

Control group: the traditional teaching method was adopted, and the instructor prepared multimedia slides in advance to teach the lectures in the way of theoretical knowledge. Afterwards, the students were led to view the hematology patients in the hospital, asked about the medical history, physical examination results and the characteristics of the cases, and were guided to sort

out and analyze and write the medical records, and were encouraged to put forward the diagnosis independently. When the patient completed the follow-up examination, the results were asked, accordingly the diagnosis was improved, the treatment plan was formulated, and finally the performance of the interns was comprehensively evaluated by the teaching doctor. Observation group: PBL combined with Seminar teaching method, PBL teaching: after the students were admitted to the department, the instructor completed the admission preaching, and then carried out the problem-introduction teaching for the typical signs and symptoms of hematology and laboratory tests, so as to expand the students' clinical diagnosis and treatment thinking. Students are guided to discuss in groups, encouraged to express their views and draw clinical diagnosis and treatment pattern diagrams together, so as to visualize abstract knowledge and deepen their understanding and memory.Seminar Teaching: Encourage all groups to speak freely, put forward more accurate diagnostic bases for cases, formulate detailed diagnostic and treatment plans, and elaborate on follow-up auxiliary examinations and try to draw up corresponding treatment plans. The instructor listens carefully to each group's plan during the students' speeches and summarizes them. For the group's plan with errors, the instructor guides the students to think deeply by questioning and analyzing, and corrects their wrong perceptions. In the whole teaching implementation process, the teacher in time to the group members within a reasonable range of prompting and guidance, skillfully control the classroom rhythm. Not only to fully mobilize students' independent learning and learning enthusiasm, but also to pay attention to the direction of the discussion, to avoid unnecessary quarrels or deviation from the theme of the discussion. Towards the end of the class, the instructor systematically summarized the results of all the students' analyses, and finally announced the optimal diagnosis and treatment plan for this case, so that the students could independently reflect on their own inadequacies in the process of thinking, and prompted the students to continue to grow in the process of reflection. The teaching time for each lesson of the two groups was 45 min, and the teaching was continuous for 24 lessons.

2.3 Observation indicators

① Examination results: After the study, the interns were tested in three dimensions: theoretical knowledge was examined in written form, with a score of 50; practical skills were assessed through diagnostic and treatment operations, accounting for 30 points; and case analysis was used to assess the comprehensive analytical ability, with a score of 20 points. ② Students' recognition of teaching methods: using a questionnaire developed by the hospital, the two groups were evaluated in terms of the comprehensive dimensions of the recognition of teaching methods. The scale is full of 100 points, and according to the score, the evaluation is classified into three grades: highly approved (≥90 points), approved (60-89 points), and disapproved (<60 points). Among them, the formula for the approval degree is: (number of very approved + number of approved) ÷ total number of students × 100%.

2.4 Statistical methods

The indicators were detected using SPSS 26.0, [cases (%)] for count data, line $\chi 2$ test; (false) for measurement data, line t test; data results calculated using statistical software $P<0.05$, that is, the difference is statistically significant.

3. Results

3.1 Examination results

Table 1: The examination scores (theoretical knowledge, practical skills, and comprehensive analytical ability) of the observation group were higher than those of the control group, $P<0.05$.

Table 1. Examination results (false points)

Groups	Number of examples	Theoretical knowledge	Practical skill	Comprehensive analytical capacity
Control subjects	58	40.42±2.03	22.15±1.53	13.26±1.33
Observation group	58	45.02±1.12	25.27±0.72	16.52±0.45
t-value		15.110	14.052	17.683
P-value		<0.001	<0.001	<0.001

3.2 Students' acceptance of teaching methods

Table 2: The total recognition of the observation group was higher than that of the control group, $P<0.05$.

Table 2. Students' approval of teaching methods [Example (%)]

Groups	Number of examples	It's very well accepted	Accreditation	Disapproval	Degree of recognition
Control subjects	58	18(31.03)	26(44.83)	14(21.14)	44(75.86)
Observation group	58	25(43.10)	28(48.28)	5(8.62)	53(91.38)
$\chi 2$-Value					5.098
P-value					0.024

4. Discussion

In medical education, clinical internship teaching of hematology is the key to cultivate professional hematology talents, and its teaching quality is related to the quality and practical ability of future medical practitioners. For a long time, traditional teaching has dominated the field, which enables students to master certain basic theories, but in the face of complex clinical cases, students are difficult to apply knowledge flexibly and lack independent thinking and problem-solving ability. Nowadays, the student-centered teaching method is becoming the direction of reform. The organic combination of the two teaching methods, applied to the clinical internship teaching of hematology, is expected to break the teacher-centered limitation of the traditional teaching methods, mobilize the initiative and mobilization of students' learning, and bring new vitality and effectiveness to teaching.

The results of this study showed that the examination scores (theoretical knowledge, practical skills, comprehensive analysis ability) of the observation group were higher than those of the control group, suggesting that the use of PBL combined with Seminar teaching method in the teaching of hematology clinical internship is conducive to the improvement of students' performance. The reason for this may be: PBL teaching method is problem-oriented and integrates hematology theories into practical problem situations. Students actively consult the information and study theories in order to solve the problems, so that they can understand and memorize the knowledge more deeply. In the face of complex clinical problems, students need to think from multiple perspectives, comprehensive knowledge analysis, reasoning and judgment, in the continuous problem solving, comprehensive analytical ability can be fully exercised to better cope with the examination comprehensive questions. At the same time, because the problem originates from the clinic, students can intuitively feel the connection between theory and practice, so the performance in the practical skills assessment is better.Seminar teaching method focuses on group discussion, students can share their views, exposure to multiple ways of thinking and knowledge, and deepen their understanding of hematology, which is conducive to the improvement of the theoretical examination scores. During the discussion, students should express their views clearly and communicate effectively, which prompts them to think deeply and not only improves the mastery of theoretical knowledge, but also enhances their comprehensive analytical ability.

At the same time, the overall recognition of hematology internship among the internship students was higher in the observation group than in the control group, suggesting that the use of PBL combined with Seminar teaching method in hematology clinical internship is conducive to improving the students' recognition of the teaching method. The reasons for this may be: the PBL teaching method sets up real and challenging clinical problems, changes the traditional boring theoretical inculcation mode, students actively participate in case discussions, immersive learning experience makes learning interesting and stimulates their curiosity and desire for exploration. At the same time, students independently consult data and analyze the research around the problem, master the independent learning method, witness the growth of their own ability, and naturally increase the acceptance of the teaching method.Seminar teaching group discussion session creates sufficient opportunities for students to work together in a team. In the joint discussion of cases, the development of diagnosis and treatment plans, students learn to listen, play advantage, feel the power of teamwork, good teamwork experience is also conducive to improve the recognition . In addition, the teacher changes from the dominant to the guide in teaching, interacts frequently with students, guides the Q&A at the right time, closes the distance between teachers and students, and makes students feel the attention and support, which further enhances the goodwill towards the pedagogy.

In conclusion, the use of PBL combined with Seminar teaching method in hematology clinical internship teaching is conducive to improving students' performance and enhancing their recognition of the teaching method, and has a high value of promotion and application in clinical teaching.

References

[1] Qin Lili, Fan Xuejuan. Exploration on the application of PBL combined with CBL teaching mode in the teaching of hematology for international students[J].Chinese Journal of Multimedia and Network Teaching (Mid-Term),2024,(03):77-80.

[2] Wu Kun, Yang Jinrong, Nie Bo, et al.Application of Seminar joint case teaching method in hematology teaching[J]. China Continuing Medical Education,2023,15(11):84-87.