

Evaluation of the Effect of Individualized Health Education on Bowel Preparation in Patients Undergoing Colonoscopy

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Abstract: In order to improve the diagnosis and treatment effect of colonoscopy patients through individualized health education. We selected 86 hospitalized patients who underwent colonoscopy in our hospital from April 2022 to April 2023 as the research objects. And we randomly divided them into two groups, namely the control group and the observation group. Then the control group was given routine nursing knowledge explanation, and the observation group was given individualized health education on the basis of routine knowledge. By observing the intestinal cleanliness of the two groups of patients, the knowledge of colonoscopy and the compliance of diet and medication, the application effect of individualized health education on intestinal preparation of colonoscopy was discussed. Resultly, this study found that the patients in the observation group were significantly better than the control group in terms of intestinal cleanliness, diet and medication compliance ($P < 0.05$). In conclusion, in the preparation of patients for colonoscopy, individualized health education can improve intestinal cleanliness and medication compliance. And by understanding more relevant medical knowledge, it can effectively improve the diagnosis and treatment effect of colonoscopy patients.

Keywords: Individualization; health education; colonoscopy; bowel preparation; effect evaluation

1. Introduction

Colonoscopy has been widely used in the diagnosis and treatment of intestinal diseases and is one of the commonly used methods. Intestinal cleanliness is a key factor in determining the success of colonoscopy. Therefore, before the implementation of the examination, it is necessary to prepare the patient's intestines, clean the intestines and other necessary work to avoid the specular contamination and lesion occlusion caused by factors such as intestinal feces, which will affect the observation effect [1], and further lead to the failure of the examination or the occurrence of missed diagnosis. At present, the commonly used bowel preparation methods are oral medication and enema [2]. Intestinal cleanliness is the key to determine the effectiveness of colonoscopy diagnosis and treatment, which is closely related to the health education of patients by nursing staff before examination [3]. Nurses provide one-on-one written education and explanation to patients. Based on each patient's own situation, they explain the purpose of intestinal preparation, potential adverse reactions, and response measures to patients before taking medication. They also distribute written education manuals to facilitate patients and their families to carefully read and understand the relevant matters of medication. During the process of intestinal preparation, nurses should also observe the patient's condition at all times and promptly answer questions for patients and their families, Strengthen relevant knowledge. The nurses gave one-to-one written education and explanation to the patients. According to the situation of each patient, the nurses explained the purpose of intestinal preparation, possible adverse reactions and countermeasures to the patients before taking the medicine, and issued a written education manual to facilitate the patients and their families to carefully read and understand the related matters of taking the medicine. In the process of intestinal preparation, the nurses should also observe the situation of the patients at any time, answer the questions for the patients and their families in time, and strengthen the relevant knowledge. In the process of bowel preparation, the use of incorrect methods will lead to poor intestinal cleanliness and compliance of patients, which will directly affect the diagnosis and treatment of patients with colonoscopy. Based on this, the purpose of this paper is to explore the effect of individualized health education in bowel preparation for colonoscopy patients. It is reported as follows.

2. Materials and Methods

2.1. General information

86 patients who underwent colonoscopy examination in the gastroenterology department of our hospital were selected as the research subjects, with a time range of April 2022 to April 2022. All patients had no history of enteritis, intestinal obstruction, or other serious diseases, and were able to tolerate colonoscopy examination. All patients voluntarily participated in this study and informed all patients and their families of the specific conditions observed. Then, the patients were randomly divided into a control group and an observation group, with a total of 41 patients in the observation group, 27 males and 14 females, with an average age of (58.3 ± 7.8) years. Among them, there were 36 patients with education level of junior high school or above, and 5 patients with education level of primary school or below. There are a total of 45 patients in the control group, including 23 males and 22 females, with an average age of (52.1 ± 6.4) years. Among them, there are 38 patients with education level, junior high school or above, and 7 patients with primary school or below. There was no statistically significant difference in gender, number, age, and education level between the two groups of patients ($P < 0.05$), therefore the two groups are comparable [4,5].

2.2. Method

Control group: We provide routine nursing knowledge explanations, including oral health education, informing patients of the purpose and significance of colonoscopy, the importance of intestinal preparation work and related precautions, and observing self-defecation.

Observation group: On the basis of implementing routine nursing knowledge explanation, personalized health education has also been strengthened. The main content includes: (1) nursing staffs conduct multi-dimensional assessments of the patient's actual situation, fully understanding the patient's age, physique, lifestyle habits, rest, defecation, diet, and mastery of knowledge related to colonoscopy. And nursing staffs develop their own information sheets for all patients. Meanwhile, we record their personal basic information, the number of colonoscopy examinations, and the development of their condition since hospitalization in detail for later telephone follow-up. And we inform all patients that they can consult by phone at any time if they encounter any questions or physical discomfort. At the same time, by observing the patient's behavioral language, we effectively evaluate the patient's psychological condition, and understand the patient's relevant condition. And we provide targeted and personalized guidance, supplemented by explanations of relevant knowledge. Then we inform the basic principles of intestinal preparation work and medication situation, so that the patients fully understand the necessity of intestinal preparation during colonoscopy. Nursing staffs need to focus on explaining the adverse consequences caused by inadequate intestinal preparation work, and also enable patients to understand the safety and effectiveness of intestinal preparation. Through this, we can enhance patients' trust and support in medical staff, and establish a good nurse patient relationship to improve patients' cooperation with the examination. At the same time, nursing staff can also print the basic points related to intestinal preparation into a paper version for distribution, allow patients to browse at any time to improve their understanding of knowledge and deepen their impression. (2) Nursing staffs need to advise patients before taking medication. For elderly patients with memory decline, relevant health education can be provided to their families, and targeted emphasis should be placed on the precautions that need to be taken. Nursing staffs inform patients of the medication usage methods, including dosage and duration, and inquire about their dietary habits and structure to remind them to avoid consuming high fiber foods such as vegetables and fruits. At the same time, they should also remind patients to pay attention to the rationalization and balance of dietary adjustments. For elderly and frail patients, it is necessary to follow the principle of taking medication in small amounts, multiple times, and in batches to prevent adverse reactions such as bloating and vomiting. For patients with low education and weak understanding of relevant knowledge, patient guidance and explanation should be provided. And their families should be encouraged to participate in medication care and assist nursing staff in the guidance process. We show sufficient patience for patient consultation and questions raised, and provide detailed explanations and answers as much as possible.

When encountering patients with good physical condition but accompanied by constipation, the dosage of medication should be appropriately increased according to the patient's actual situation, adopting the principle of combined medication, and reminding the patient to follow the doctor's advice and take the corresponding dosage within the specified time; For patients with long-term constipation, guide them to change their eating habits, increase the consumption of semi liquid foods such as Congee,

and take laxatives 72 hours before the examination as instructed by the doctor until the symptoms of constipation are relieved and feces are softened. For patients with chronic diseases, comprehensive consideration should be given before taking medicine. For example, diabetes patients should avoid using antidiabetic drugs on the day of examination, and hypertension patients should take oral antidiabetic drugs in advance. At the same time, family members should also be explained about bowel preparation to urge patients. In addition, it is necessary to establish a good nurse patient relationship through effective communication and exchange, give full respect to patients, and demonstrate their professional skills and abilities in all aspects, in order to establish a foundation for gaining the trust of patients and their families. If patients experience negative emotions such as unease, fear, and anxiety during the treatment process, nursing staff should take targeted psychological intervention measures in a timely manner, actively inform them of relevant knowledge, guide patients to use auxiliary methods such as attention transfer, listening to music, and exercising, to alleviate patients' anxiety and anxiety, and ensure the smooth progress of intestinal preparation work.

2.3. Evaluation method

2.3.1. Cleanliness of colonoscopy

The cleanliness level of the colonoscopy (see Table 1) is evaluated by the colonoscopy operator after examination, and the cleanliness level of the intestine is divided into 4 levels.

Table 1: Cleanliness level of colonoscopy

Level 1	Satisfactory intestinal preparation, no fecal residue or fecal water retention in the intestinal cavity, clear intestinal fluid, good visibility of the whole colonic mucosa, smooth operation and good observation.
Level 2	I am quite satisfied with the preparation of the intestine. There is no fecal residue in the intestinal cavity, and there is a small amount of clear fecal water in the intestinal cavity. The observation of the colonic mucosa is basically clear, and the operation is relatively smooth.
Level 3	The intestinal preparation is average, there is no fecal residue in the intestinal cavity, there is dirty fecal water in the intestinal cavity, and some intestinal mucosa in the colon segment is visible. The operation is still smooth, and even the examination is forced to be terminated due to insufficient intestinal preparation.
Level 4	Not satisfied with intestinal preparation, with fecal residue or lumps in the intestinal cavity, dirty fecal water in the intestinal cavity, and a small portion of the intestinal mucosa visible in the colon segment. The operation is not smooth and cannot be checked.

2.3.2. Degree of understanding of relevant knowledge

Table 2: Gastroenterology Department Intestinal Cleanliness Questionnaire Survey

	Know a lot	Understand	General	Do not understand	Very unfamiliar
Purpose of colonoscopy examination					
The significance of colonoscopy examination					
Methods of intestinal preparation					
Diet before intestinal preparation					
Time for oral intestinal cleanser					
Is intestinal preparation qualified					
Precautions for colonoscopy examination					
Diet after colonoscopy					
Your bed doctor					
Your bed nurse					

The level of understanding of relevant knowledge was evaluated using a questionnaire survey developed by our department (see Table 2), which includes the purpose and significance of colonoscopy, methods of intestinal preparation, diet, and related precautions. The full score is 100 points, and the higher the score, the better the patient's understanding of colonoscopy related knowledge.

2.3.3. Compliance with diet and medication

The patient's diet and medication compliance were also evaluated through a self-made questionnaire survey conducted by our department, which includes dietary compliance and medication compliance.

Dietary compliance refers to the provision of a residue free and semi liquid diet by general patients the day before the examination. Patients with constipation or a history of constipation are given a residue free and semi liquid diet three days before the examination. All patients should fast on the day of the examination until all examination steps are completed; Compliance with medication refers to whether the patient strictly follows the prescribed time, dosage, method of use, and water intake for medication.

2.3.4. Statistical methods

We directly input all statistical data from the questionnaire survey into the computer, and use statistical software SPSS version 22.0 for data processing and statistical analysis. The measurement data is represented by $\bar{x} \pm s$, and the t-test method is used for inter group comparison; The counting data is expressed as a percentage (%), and inter group comparisons are tested. The difference is statistically significant when $P < 0.05$.

3. Results

3.1. Comparison of intestinal cleanliness between two groups of patients

The results of the patient's intestinal cleanliness are shown in Table 3.

Table 3: Comparison of intestinal cleaning rates among patients [cases (%)]

Group	n	Intestinal cleaning			Intestinal uncleanness		
		Level I	Level II	Total	Level III	Level IV	Total
Observation group	41	29(70.7)	7(17.1)	36(87.8)	3(7.3)	2(4.9)	5(12.2)*
control group	45	28(62.2)	6(13.3)	34(75.5)	7(15.6)	4(8.9)	11(24.5)

Note: Compared with the control group's intestinal cleaning rate, * $P < 0.05$

3.2. Knowledge awareness of two groups of patients before and after health education

The results of patients' awareness of relevant knowledge before and after health education are shown in Table 4.

Table 4: Score of patients' awareness of relevant knowledge before and after health education

Group	n	Before education	After education
Observation group	41	49.23 ± 4.97	87.14 ± 3.76*
control group	45	49.59 ± 5.12	71.34 ± 4.62

Note: Compared with the control group's awareness rate of relevant knowledge before and after health education, * $P < 0.05$

3.3. Comparison of compliance between two groups of patients

Patient compliance is shown in Table 5.

Table 5: Comparison of compliance between two groups of patients [cases (%)]

Group	n	Dietary compliance	Medication compliance
Observation group	41	38(92.7)	39(95.1)*
control group	45	35(77.8)	37(82.2)

Note: Compared with the compliance of the control group patients, * $P < 0.05$

4. Discussion

Health education refers to educational activities and processes that help individuals and groups master health care knowledge, establish health concepts, and voluntarily adopt healthy behaviors and lifestyles through information dissemination and behavioral intervention. It is of great significance for improving patient compliance and nursing quality. Individualized health education refers to the targeted analysis of patients' specific situations [6]. Different patients have different factors that affect intestinal preparation, so different health education contents and methods need to be carried out based on the existing or potential factors that affect intestinal preparation, to help patients establish correct health concepts, promote patients to better grasp health education knowledge, and improve their intestinal cleanliness and compliance; By understanding more relevant knowledge, the treatment effect of colonoscopy patients

has been improved. This study found that implementing personalized health education has achieved the expected goals and achieved good results. Patients' intestinal cleanliness, knowledge awareness rate, and compliance have all been improved to varying degrees, providing a good foundation for further colonoscopy examination.

Before undergoing colonoscopy, patients' unreasonable diet and medication can have an impact on the quality of intestinal preparation, which in turn can affect the accuracy and safety of colonoscopy diagnosis and treatment. Poor intestinal preparation can directly affect the observation of the colon mucosa, easily leading to missed diagnosis and misdiagnosis, and affecting the further development of endoscopic treatment work [7]. Additionally, intestinal perforation may also occur due to unclear direction of the intestinal cavity. Serious complications such as bleeding [8]. Previous studies have found a close correlation between the implementation effect of personalized health education and the level of intestinal cleanliness [9], which indirectly affects the effectiveness of colonoscopy diagnosis and treatment. At present, most nursing staff are too rigid and mechanized in their health education for colonoscopy patients, lacking targeted treatment and personalized guidance, which often leads to complications being ignored. Therefore, based on these negative effects, when providing health education on intestinal preparation knowledge to patients, it is necessary to have a thorough understanding of their age, personal constitution, lifestyle habits, daily routines, bowel movements and diet, as well as the mastery of knowledge related to colonoscopy. Based on this, personalized health education should be provided to patients. In order to eliminate the factors that affect patients' diet and medication compliance, standardized and targeted guidance should be provided, so that patients and their families can understand the importance and receive attention.

The application of individualized health education in intestinal preparation reflects the concept of high-quality nursing work, with patients as the center, reflecting modern nursing concepts. Individualized health education plans are more practical, and the effect is twice the result with half the effort. Nursing staff can better improve details, methods, and nursing levels in clinical work [10]; The patient's mastery of basic knowledge has also improved, and the nurse patient relationship will also be improved to a certain extent.

Chronic constipation patients have abnormal intestinal motility and visceral sensation, Often affected by the presence of intestinal feces and intestinal motility disorders, the quality of intestinal preparation is affected. Quantity. It can be taken in installments and tonics, such as taking 1 pack of tonics at noon before the examination, taking 2 more packs on the same day, or taking laxatives 3 days before the examination. Dietary adjustments play an important role in the preparation process of the intestine, promoting the recovery of patients. Comfort is one of the requirements of care, and when taking and refreshing the intestines, Due to excessive drinking water and frequent defecation in a short period of time, the patient's physiology is affected. We try to minimize feelings of psychological fear, unease, and discomfort towards patients. Dietary control for patients, shortening the time for dietary control, according to clinical observations. The time for food control is 1-2 days, and some patients are highly nervous about their own food control 3 days later, the results of colonoscopy showed no significant change in intestinal cleanliness, while And long-term dietary control increases the patient's gastrointestinal reactions, fatigue, and malignancy. Heart, dizziness, and even hypoglycemic symptoms may occur.

In the process of implementing personalized health education, nursing staff not only need to master intestinal preparation methods, relevant factors that affect intestinal preparation, and be familiar with the appropriate population, dosage, adverse reactions, and other necessary knowledge of intestinal clearing drugs, so as to provide professional guidance to patients at any time and fully. Moreover, it is possible to make reasonable and effective adjustments to the intestinal preparation plan based on the actual situation of patients, which reflects the targeted characteristics of health education in colonoscopy and has a significant effect on improving patient compliance and enhancing patient satisfaction. This study shows that after implementing personalized health education, the observation group patients showed more ideal results in terms of intestinal cleanliness rate, mastery of relevant knowledge, and compliance with dietary medication compared to the control group, which is more in line with expected diagnosis and treatment. Research has shown that personalized health education methods have outstanding advantages. Patients not only have a faster and better grasp of health knowledge, but also their compliance can be greatly improved, and they can better follow medical advice. This is of great significance for improving the quality of care and the diagnosis and treatment effectiveness of patients undergoing colonoscopy.

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