

Application of Clinical Nursing Pathway in the Peri-Treatment Period of Immunoabsorption Therapy for Rheumatic Immune Diseases

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Abstract

Objective: The paper aims to investigate the clinical nursing pathway (CNP) in the application of immunosorption therapy in patients with rheumatic immune disease. **Methods:** Convenience sampling method was used to select inpatients who received immunoabsorption therapy from January 2020 to December 2022 in the rheumatology and Immunology department of a 3A hospital in Jingzhou City. 30 patients from January 2020 to June 2021 were selected as control group, and 30 patients from July 2021 to December 2022 were selected as observation group. The control group was given routine nursing. On the basis of the control group, the observation group used a clinical nursing pathway for intervention during the perioperative period of immunosorbent therapy. The incidence of adverse reactions, patient satisfaction, and nurse satisfaction during immunosorbent therapy between the control group and the observation group were compared. **Results:** After intervention, the incidence of adverse reactions in the observation group was significantly lower than that in the control group, while patient satisfaction and nurse satisfaction in the observation group were significantly higher than those in the control group. The results are all statistically significant ($P < 0.05$). **Conclusion:** Clinical nursing pathway is beneficial to reduce the incidence of adverse reactions in patients with immunoabsorption during peri-treatment and improve the satisfaction of patients and nurses.

Keywords

Immunoabsorption, Clinical Nursing Pathway, Rheumatic Immune Disease,

1. Introduction

Rheumatic immune disease is a common autoimmune disease, the main cause of which is the abnormal immune response of the body to normal tissues, resulting in excessive production of autoantibodies, which will attack the body's own cells, tissues and organs, cause inflammation, and eventually cause damage to the body [1]. At present, the treatment of rheumatism mainly uses hormones and immunosuppressants, but the above drugs have great side effects and take a long time to take effect, which has limitations for critical patients. In recent years, a new therapy to remove specific autoimmune components in the immune system: immunoadsorption (IA) has become a hot research direction in the treatment of autoimmune diseases [2]. It is a more targeted approach to the treatment of rheumatic immune diseases.

Immunoadsorption is a blood purification technology that combines highly specific antigens, antibodies or substances with specific physical and chemical affinity (ligand) and adsorbent materials (carrier) into adsorbent (column), selectively or specifically removes pathogenic immune complex or autoantibody from plasma to improve patients' clinical symptoms, so as to alleviate the disease.

Immunoadsorption therapy is to extract the patient's blood through peripheral or central vein, add anticoagulant into the blood, and then go through the filter to separate the plasma and blood cells in the blood, plasma pump to separate the plasma to the adsorbent [3], through the adsorption column with high-affinity substances to remove pathogenic factors, and finally the purified plasma and red blood cell components back to the patient.

Peri-treatment nursing of immunoadsorption is very important. Studies have shown that standardized care can reduce peri-treatment complications, such as bleeding tendency, allergic reactions, and pipe blockage. Clinical nursing pathway (CNP) is to optimize the nursing workflow and form a standardized nursing process under the premise of patient-centered, so as to guide nursing work in a more predictable, specific, standardized and active way. At the same time, it also enables patients to clarify their nursing goals [4], so that they can consciously participate in the whole process of disease management.

In clinical nursing work, peri-treatment nursing content of immunoadsorption is complicated and tedious. In order to further improve the standardization of treatment, reduce adverse reactions as far as possible, and improve nurses' work efficiency and patients' satisfaction; in this study, clinical nursing pathway method was used to intervene in patients receiving immunoadsorption therapy in the rheumatology and immunology department of a 3A hospital in Jingzhou City from January 2021 to December 2022, and the effect was good. The report is as follows.

2. Object and Method

2.1. Research Object

Patients who underwent immunosorption therapy from January 2020 to December 2022 in a Grade-A hospital in Jingzhou City were selected as subjects by convenience sampling method. Inclusion criteria: 1) older than 18 years; 2) Patients clearly diagnosed with rheumatic immune disease and clinically assessed by doctors to improve their condition by immunoadsorption; 3) Informed consent can cooperate with the completion of this study. Exclusion criteria: 1) patients with consciousness disorder; 2) Patients with severe infection or cardiovascular and cerebrovascular diseases. According to the above criteria, 30 patients from January 2020 to June 2021 were included as the control group, including 6 males and 24 females, aged from 19 to 63 years old, with an average of (32.5 ± 6.2) years old and a course of disease of 3 - 180 months. From July 2021 to December 2022, 30 patients were included in the observation group, including 4 males and 26 females, ranging in age from 21 to 60 years, with an average age of (31.6 ± 7.4) years. The course of disease lasted 4 - 178 months. There were no significant differences in age, gender, course of disease and other general data between the two groups ($P > 0.05$), indicating comparability. The patient has signed an informed consent form.

2.2. Methods

2.2.1. Control Group

All adopted DNA280 adsorption column or DNA230 adsorption column produced by Zhuhai Jianfan Biotechnology Company. Before immunoadsorption therapy, all patients signed informed consent after fully understanding the pros and cons of the therapy. The control group was carried out according to the nursing routine of immunoadsorption therapy in the department. The specialist nurses cooperated with the doctors to carry out deep venocentesis (generally selecting the internal jugular vein or femoral vein) with dual cavity catheterization. The whole course lasted for 5 days, and the adsorption therapy was performed 3 times, respectively on the 1st, 2nd and 4th day of catheterization, and the treatment time was generally 2 - 2.5 hours. The whole treatment process was monitored by a specialist nurse bedside, and the patient underwent ECG monitoring and oxygen inhalation. Specialist nurses carried out routine nursing education in the course of treatment, including the significance and process of immunosorption therapy, postoperative precautions, etc.

2.2.2. Observation Group

Observation group was on the basis of control group to take clinical pathway method intervention. Our department has set up a special working group, strictly following the principles of evidence-based medicine, sorting out, summarizing and summarizing the contents of immunoadsorption peri-treatment, and then using clinical nursing pathway methods, from the four aspects of “preparation and education before treatment”, “disease monitoring during treatment”, “ob-

ervation and health guidance of complications after treatment”, “guidance after extubation” to form a standardized, organized clinical path table.

The details are as follows: first, in the “pre-treatment preparation and education” aspect, from the environmental preparation, patient preparation two aspects to strengthen the management, in the environmental preparation is equipped with a single room ward, patients before and after treatment for ultraviolet disinfection; Patient preparation measures include responsible nurses to educate patients on the preparation of materials. Before treatment, the preparation list of materials for patients is distributed, including bedpans, urinals (male patients), toilets, disposable sheets, and two sets of cotton loose clothes. Perineal skin preparation and relevant laboratory examination are performed the day before treatment. The responsible nurse taught the process of immunosorption therapy through video, explained the key points of cooperation with patients, and conducted psychological counseling. Second, in terms of “condition monitoring during treatment”, specialized nurses perform ECG monitoring and oxygen therapy for patients, connect perfusion machine for patients after detecting vascular access, monitor patients’ breathing and pulse in real time before and after using the machine, monitor body temperature and blood pressure every half hour, and gradually increase blood flow to 200 - 250 ml/min according to patients’ conditions [5]. Closely observe whether the patient has palpitation, chest tightness, blood pressure drop and other adverse reactions, at the same time pay attention to the function of the catheter, real-time adjustment of the direction of the catheter, to avoid the blockage of blood. During the whole treatment process, personalized anticoagulant therapy was carried out in strict accordance with the doctor’s advice. Third, in the aspect of “observation and health guidance of complications after treatment”, responsible nurses should take over every shift to observe whether the puncture site has oozed blood, and conduct standardized catheter maintenance operations to avoid tube blockage and infection. In the aspect of health guidance, it focuses on guiding the care of patients’ catheters, guiding patients to reasonably relieve themselves, avoiding bending and discounting of pipes, and preventing tube removal. In addition, patients were instructed to prevent hypoglycemia and falls. The main measures included timely eating breakfast, activity guidance, and prevention of deep vein thrombosis. Fourthly, in the aspect of “post-extubation guidance”, emphasis should be placed on guiding patients to immobilization of operative limbs, keeping the dressing at the puncture site clean and dry, and avoiding bleeding or infection caused by improper nursing after extubation.

2.3. Evaluation Indicators

1) Incidence of adverse reactions includes bleeding tendency, allergic reaction (fever, chest tightness, etc.), pipeline blockage, hypoglycemia, decreased blood pressure, fall of patients, etc. 2) Patient satisfaction and nurse satisfaction: self-designed satisfaction questionnaire was adopted, which was investigated and recovered within 6 hours after extubation of patients and divided into three levels: satisfaction, general and dissatisfaction.

2.4. Statistical Method

SPSS22.0 statistical software is used for data processing and analysis. The measurement data is expressed by mean \pm standard deviation ($\bar{X} \pm s$), and independent sample t-test is used for inter-group comparison. The counting data were expressed in frequency and percentage (%), and the chi-square test was used for comparison between groups. The difference was statistically significant with $P < 0.05$.

3. Results

3.1. Incidence of Peritherapeutic Adverse Reactions in 2 Groups

In the observation group, one case of adverse reaction occurred, which was bleeding at puncture after extubation: The patient did not immobilization the affected limb after extubation according to the doctor's advice, and was eager to get out of bed and bleed at the puncture site, but did not bleed after being pressed again. A total of 7 adverse reactions occurred in the control group, including hemorrhage after extubation in 2 cases, catheter dysfunction in 2 cases, hypoglycemia in 1 case, fall in 1 case, and decrease in blood pressure in 1 case. The above adverse reactions were actively treated, and none of them caused damage to patients. There was statistical significance in the incidence of adverse reactions in peri-treatment between the two groups ($P < 0.05$) (see **Table 1**).

3.2. Comparison of Treatment Satisfaction between the Two Groups

In terms of satisfaction of patients and nurses, the satisfaction of the observation group was significantly higher than that of the control group, the difference was statistically significant ($P < 0.05$) (see **Table 2** and **Table 3**).

Table 1. Comparison of the incidence of adverse reactions in the two groups during the treatment period [n(%)].

Group	n	Adverse reactions
Control group	30	7 (23.3)
Observation group	30	1 (3.33)
χ^2		4.57
P		<0.05

Table 2. Comparison of patient satisfaction between the two groups [n(%)].

Group	n	Patient satisfaction		
		Satisfied	Generally satisfied	Dissatisfaction
Control group	30	20 (66.67)	9 (30)	1 (3.33)
Observation group	30	28 (93.33)	2 (6.67)	0
χ^2			5.77	
P			<0.05	

Table 3. Comparison of nurse satisfaction between the two groups [n(%)].

Group	n	Nurse satisfaction		
		Satisfied	Generally satisfied	Dissatisfaction
Control group	14	8 (57.14)	6 (42.86)	0
Observation group	14	13 (92.86)	1 (7.14)	0
χ^2			5.56	
<i>P</i>			<0.05	

4. Discussion

In recent years, with the deterioration of living environment, the increase of social pressure and the change of diet structure, the incidence of rheumatic immune diseases has shown an obvious trend of rise, and has gradually become a common and frequently occurring clinical disease [6]. The treatment of immune system diseases is complex, incurable and highly personalized, and how to effectively treat them is a hot issue of clinical concern. Immunoabsorption therapy is a new clinical treatment of rheumatic immune diseases [7]. Through extracorporeal circulation and the use of antigen-antibody immune response, it can effectively remove related pathogenic factors in the body, which is an effective method of blood purification. Immunoabsorption therapy can provide a good treatment window for reducing disease activity. For rheumatic diseases with poor treatment effect with drugs alone or in critical and severe condition, Immunoabsorption therapy can rapidly relieve the clinical symptoms and improve the condition of patients [8].

However, unlike conventional treatments, the treatment requires deep vein catheterization, using extracorporeal circulation to remove disease-causing factors from the blood and then transfusing it back into the patient through an adsorbent device. For patients, due to the lack of understanding, acceptance and compliance of this new and invasive treatment, many patients have different degrees of psychological disorders, lack of confidence in treatment; will appear excessive tension, fear, anxiety and other adverse emotions. In this study, based on the advanced method of clinical nursing pathway (CNP), on the basis of patient-centered, the nursing work content of immunoabsorption peri-treatment is integrated and optimized, forming a standardized nursing process, which is more guiding for nurses' work [9]. At the same time, it also enables patients to have a clear understanding of their own preparation and coordination work, so that they can actively participate in the entire process of disease management [10]. Experienced specialist nurses focus on the two dimensions of patient education and condition observation in the three aspects of treatment before, during and after treatment. Through one-to-one nursing, personalized understanding of patients' concerns can effectively relieve patients' bad mood and improve patients' treatment compliance and satisfaction.

In addition, Immunoabsorption therapy is based on ideal vascular access to

ensure adequate blood flow. Therefore, it is necessary to actively maintain the pipeline during treatment, disinfect and fix the pipeline, seal the tube correctly, and actively prevent the occurrence of thrombus in the catheter. In this study, by establishing standardized operation procedures of immunoadsorption, the focus of disease observation and nursing is clarified, especially for the maintenance of deep vein catheterization, which effectively reduces the occurrence of various complications during peri-treatment. At the same time, the process and standardized form of clinical pathway can make the complex work content in the peri-treatment period organized and standardized [11], so that nurses have a clear idea of the work content and focus, so as to improve the work efficiency and satisfaction of nurses.

5. Conclusion

Through this study, it was found that clinical nursing pathway can effectively reduce various complications and improve the satisfaction of patients and nurses during the peri-treatment period of immunoadsorption for rheumatic immune diseases, which is worthy of clinical application. However, the clinical nursing pathway developed at this stage is not fixed. In future work, we should enrich and improve on the basis of evidence-based and clinical practice, and should focus on the needs of patients, in order to better provide comprehensive and high-quality services for patients with immunosorbent therapy. However, the shortcomings of this study are that it is only conducted in a single medical institution, lacks a multi-center sample size, and lacks evaluation indicators related to the patient's disease activity in the patient outcome indicators, which needs further research.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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