The Impact of Clinical Pharmacy Services on the Rational Use of Cephalosporins

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Abstract: Objective: To study the impact of clinical pharmacy services on the rational use of cephalosporin drugs during the process. Methods: Fifty patients treated in our hospital who needed to receive cephalosporin drugs (from January 2023 to April 224) were selected as the research samples. They were divided into the control group and the observation group according to the random method, with 25 patients each group. The observation group received clinical pharmacy services, while the control group did not. The differences in various prescription drug scores and the incidence of adverse reactions were between the two groups. Results: In the comparison of various prescription drug scores, the data for the observation group were higher than those for the control group (P＜0.05). The incidence of adverse reactions in the observation group was lower than that in the control group (P<0.05). Conclusion: pharmacy services play an important role in promoting the rational use of cephalosporin drugs, effectively improving the rationality of prescription drugs and further reducing the probability adverse reactions.

Keywords: cephalosporins; clinical pharmacy services; rational drug use

1. Introduction

Cephalosporins are a class of antibiotics widely used in clinical practice, playing an important role in the prevention and treatment of various infectious. Cephalosporin drugs are highly favored in clinical practice due to their powerful antibacterial effects and relatively low side effects [1-2].However, with the increasing misuse and overuse of cephalosporins, bacteria in patients' bodies have gradually developed resistance, making once effective drugs less so, thus affecting the treatment outcomes and the smooth progression of the disease. In order to address this increasingly serious problem, the field of clinical has begun to adopt clinical pharmaceutical service measures to achieve the rational use of antibiotics, reduce unnecessary drug use, and thus delay the development of resistance. In recent years the implementation of clinical pharmaceutical service measures has achieved positive feedback results. Many medical institutions have reported [3-4] thatBy using antibiotics rationally, the patient's resistance problem has been effectively controlled, the treatment effect has been improved, and the adverse reactions caused the misuse of antibiotics and the waste of medical resources have been reduced. Therefore, it is of great significance to continue to promote and deepen clinical pharmaceutical service measures to the treatment effect of patients and control the problem of resistance. This paper carries out relevant research on this, and the research data results are as follows

2. Materials and Methods

2.1 Materials

Fifty patients treated in our hospital who needed to receive cephalosporin antibiotics (selection period: from January 2023 to April 2024) were selected as the research samples of this study. They were divided into the control group and the observation group according to the random method, with 25 patients in each group.

The control group consisted of 15 males and 10 females, with an age range of 20 to 7 years and an average age of 50.44±10.22 years. In terms of educational background, the group included 2 individuals with school education, 3 with junior high school education, 11 with high school education, and 9 with college or higher education. The patients were distributed different medical departments, with 8 in respiratory medicine, 7 in surgical surgery, 6 in infectious diseases, and a total of 4 in other departments The observation group consisted of 14 males and 11 females, with an age range of 20 to 73 years and an average age 50.39±10.21 years. In terms of educational background, the group included 1 individual with primary school education, with junior high school education, 11 with high school education, and 9 with college or higher education. The patients were distributed across different medical departments, 9 in respiratory medicine, 7 in surgical surgery, 6 in infectious diseases, and a total of 3 in other departments. The comparison of general between the two groups showed no statistically

significant difference (P>0.05).

2.2 Methods

The observation group received clinical pharmaceutical services, while the control group did not receive clinical pharmaceutical services.① Establish a dedicated medical position, which is held by qualified clinical pharmacists who serve as full-time doctors and participate in ward rounds medical consultations. The full-time doctors are responsible for strictly supervising and reviewing the drug prescriptions issued by doctors, with a focus on the dosage, type, and of drug use to avoid any potential medication errors or adverse reactions. In practice, the full-time doctors operate in accordance with relevant rules and regulations, and strictly follow hospital's drug management procedures. Especially when using cephalosporin drugs, they strictly adhere to the drug use system to ensure the compliance of the drug use, such as thoroughly reviewing the patient's allergy history to ensure that the patient has no allergic reaction to cephalosporin drugs; accurately calculating the drug dosage avoid overdose or insufficiency; and strictly standardizing the method of drug use. The full-time doctors closely cooperate with other members of the medical team, promptly the patient's drug use situation and reactions, so that measures can be quickly taken when problems arise. ②Regularly review the drug prescriptions and promptly communicate the review results with the medical department. The person in charge will formulate criteria, focusing on the rationality of the clinical doctors' prescriptions, conduct in-depth evaluations, and provide corresponding comments. During the evaluation process, if drug usage are found, corresponding disciplinary measures will be taken against the relevant doctors. ③The pharmacy will set up a special consultation window, manned by a pharmacist with rich. The main purpose of the consultation window is to provide professional Q&A services for medical staff, patients, and their families. Especially regarding various problems that may arise the clinical use of drugs, the pharmacist will provide detailed answers and guidance. ④Follow the basic principles of antibiotic use, such as doctors assessing patients' specific (medical history, allergy history, site of infection, degree of infection, and possible types of pathogens, etc.) to formulate the most suitable treatment plan for the. When choosing antibiotics, the principles of drug use, such as the antibacterial spectrum of the drug, pharmacokinetic characteristics, adverse reactions, and individual differences the patient, etc., will be followed, prioritizing drugs that can effectively cover the patient's infectious pathogens. For infected patients, oral cephalosporins be preferentially considered. When choosing specific types of cephalosporins, detailed evaluations will be conducted to determine whether first-generation or second-generation cephalosins can effectively treat the patient's infection symptoms.

2.3 Observation Indicators

Compare the differences in the indicators of prescription drug scores and the incidence of adverse reactions between the two groups. The prescription drug scores include the following: drug usage (full score 100 points), drug selection (full score 100 points), drug dosage (full score 100 points and drug compatibility (full score 100 points). The adverse reactions include: nausea, rash.

2.4 Statistical Methods

The collected data were analyzed in detail using SPSS 20.0 statistical software. All measurement data met the characteristics of normal distribution. them, measurement data were expressed in the form of "±s" and t-test was performed; counting data were presented in the form of "%" and x2 was performed. When P<0.05, the results were considered to have statistical significance.

3. Results

3.1 Comparison of prescription drug scores between the two groups

In the data comparison of various prescription drug scores, the observation group was higher than the control group (P<0.05). See Table 1 for details.

Table 1. Comparison of scores for various prescription medications between the two groups (points)

Group	Number of cases	Drug usage	Drug selection	Drug dosage	Drug compatibility
Observation group	25	91.88±2.44	95.55±2.09	90.55±4.54	90.66±3.33
Control group	25	80.76±2.24	89.54±6.54	85.56±4.12	87.65±2.44
t	-	16.786	4.377	4.070	3.646
P	-	0.000	0.000	0.000	0.001

3.2 Comparative analysis of adverse reaction incidence between the two groups

The incidence of adverse reactions in the observation group was lower than that in the control group (P<0.05). See Table 2 for details.

Table 2. Comparison of adverse reaction incidence between the two groups (%).

Group	Number of cases	Nausea	Rash	Incidence
Observation group	25	1（4.00）	0（0.00）	1（4.00）
Control group	25	3（12.00）	3（12.00）	6（24.00）
X^2	-	-	-	4.153
P	-	-	-	0.042

4. Discussion

Cephalosporins, due to their excellent antibacterial efficacy and broad antibacterial coverage, have been widely adopted in clinical use. Drugs not only excel in antibacterial effectiveness but also cover a wide range of bacteria, enabling them to play a crucial role in various infectious diseases. Compared to penillins, cephalosporins cause fewer allergic reactions, further broadening their clinical application scope. However, with the widespread use of ceposporins in clinics, the phenomenon of drug abuse has become increasingly serious, leading to the loss of efficacy of these drugs and negatively impacting patients' health and outcomes [5-6]. Therefore, the rational use of cephalosporins and the avoidance of misuse have become important tasks for clinicians and public health workers.

Clinical pharmacy services belong to emerging concepts, and their core goal is to implement targeted drug interventions and guidance based on individual differences patients. The purpose of such services lies in strengthening the standardization of drug management, improving service quality, ensuring the rationality and effectiveness of drug use, and optimizing treatment outcomes. Clinical pharmacy services can provide comprehensive and detailed drug guidance before patients receive drug therapy, effectively enhancing patients' knowledge of drugs, helping them better understand master the methods and precautions of drug use. In the research data: the data of the observation group were higher than those of the control group in the comparison of prescription drug scores (P<0.05). The data indicate that because clinical pharmacy services can provide guidance on drug usage, help doctors correctly use cephalporin drugs, they can avoid adverse drug reactions and drug interactions. Moreover, clinical pharmacy services can help doctors choose the most appropriate cephalosporin drugs on the specific conditions of patients, thereby improving treatment outcomes. Additionally, clinical pharmacy services can adjust the dosage of drugs according to the patients' disease and physiological conditions ensuring the efficacy and safety of the drugs. The incidence of adverse reactions in the observation group was lower than that in the control group (P<0.0). The data indicate that clinical pharmacy services can choose the most suitable cephalosporin drugs based on the patients' disease and resistance, thereby avoiding adverse reactions by improper drug selection.

In conclusion, clinical pharmacy services play an important role in promoting the rational use of cephalosporins, effectively improving the rationality of prescription, and further reducing the probability of adverse reactions.

References

[1] Xing Qifeng. The Impact of Clinical Pharmacy Services for Cephalosporins on Rational Drug Use [J]. Chinese of Urban and Rural Enterprises Health, 2024, 39 (09): 44-46.

[2] Sun Y J. The Effect of Clinical Pharmacy Services on the Rational Use of Cephalosporins in Clinical Practice [J Chinese Journal of Health, 2023, 35 (01): 132-134 +138.

[3] Huang Fei, Jin Hao. Clinical pharmacy services analysis of cephalosporin drugs [J]. Chinese Journal of Urban and Enterprise Health, 2024, 39 (02): 29-32.

[4] Li Wenhuan. The impact of clinical pharmacy services on the rational use of cephalosporins in the treatment of intra-dominal infections [J]. Clinical Rational Drug Use, 2024, 17 (02): 133-135 +139.

[5] Yu Wen, Tang Yun. The Effect of Clinical Pharmacy Services Intervention on the Rational Use of Cephalosporin Antim Drugs [J]. Clinical Rational Drug Use, 2023, 16 (33): 168-171.

[6] Xian Youqiang, Yang Junxiong, Long Yong, et al. Analysis of the role of clinical pharmacy services the rational use of cephalosporin drugs [J]. Chinese Community Doctors, 2022, 38 (18): 7-9.