

Effect of Cefazolin Sodium on Perioperative Prophylactic Anti-Infection in Patients Undergoing Gynecological Surgery

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Abstract: Purpose: The purpose is to investigate the effect of cefazolin sodium on perioperative prophylactic anti-infection in patients undergoing gynecological surgery. Methods: 112 cases of gynecological surgery from January 2019 to April 2020 were divided into the control group and the observation group, with 56 cases in each group. They were given cefazolin sodium + metronidazole and cefazolin sodium monotherapy respectively. The perioperative white blood cells and the incidence of adverse reactions of the two groups were compared. Results: There was no difference in the normal rate of white blood cell count between the observation group and the control group ($P > 0.05$), and no adverse reaction in the observation group, which was significantly lower than 7.14% in the control group ($P < 0.05$). Conclusion: the use of cefazolin sodium in perioperative period of gynecological surgery can prevent infection, with advanced security, less adverse reactions and high value.

Keywords: Cefazolin Sodium; Gynecological Surgery; Perioperative Period; Preventive Anti Infection

1. Introduction

Studies have shown that patients after gynecological surgery are mainly faced with postoperative infection and other problems, which belong to the high incidence of perioperative complications. If they cannot be prevented and controlled in time, it will lead to poor wound healing, prolong the recovery time of the disease, and cause serious symptoms and even death by infection, so it is necessary to prevent anti-infection of gynecological surgery patients during perioperative period^[1]. At present, there are many drugs for postoperative infection in clinic, and cefazolin sodium belongs to a wide range of drugs, which has a positive inhibitory effect on Gram-positive bacteria and less adverse reactions. However, at present, most of them are used in combination with metronidazole, it can better control the infection to a certain extent, but the adverse reactions after metronidazole use are serious, so we consider the use of

cefazolin sodium single drug control method to observe the curative effect^[2]. In this paper, the effect of cefazolin sodium on perioperative prophylactic anti infection in patients undergoing gynecological surgery is analyzed and discussed.

2. Data and methods

2.1 General information

During January 2019 to April 2020, 112 cases of gynecological surgery were divided into control group and observation group, with 56 cases in each group. The control group was in 28-68 years old, with the average age of (48.11 ± 5.78) years old; the observation group was in 26-68 years old, with the average age of (47.76 ± 5.54) years old. There was no statistical significance between the two groups ($P > 0.05$)

Inclusive indicators: 1) all patients underwent gyne-

cological surgery smoothly without abnormality; 2) the experimental scheme was approved by the hospital ethics committee; 3) the patients agreed to the experiment and signed the consent form.

Exclusion criteria: 1) previous allergic history of cephalosporins and metronidazole; 2) infection before operation; 3) no complete clinical data; 4) mental diseases; 5) blood diseases.

2.2 Method

In the control group, cefazolin sodium and metronidazole were given 30 minutes before the operation. Cefazolin sodium (Huabei pharmaceutical, Hebei Huamin pharmaceutical, Guoyao Zhunzi h13020668) was given intravenously at a dose of 2.0 g, while metronidazole (Nanjing Zhengda Tianqing Pharmaceutical Co., Ltd., Guoyao Zhunzi h20023747) was given intravenously at a dose of 0.5 g. The drug should be given within 30 minutes; After operation, 4.0g cefazolin sodium and 1.0g metronidazole were given intravenously twice a day for 24-48h.

The observation group was treated with cefazolin sodium monotherapy, and the same dosage of 2.0g was given 30 min before the operation, and 4.0g cefazolin sodium was given after the operation. The times and time of administration were the same as those of the control group.

2.3 Observation indexes

The two groups of perioperative white blood cell

situation comparison, if the white blood cell count is lower than $10 \times 10^9/L$, it is normal, while higher than $10 \times 10^9/L$, it is abnormal, and then the postoperative white blood cell count is tested. Adverse reactions included nausea and vomiting, headache and vertigo.

2.4 Statistical analysis

The data of each observation index were qualitative data, n (%) was used to represent count data, χ^2 refers to test, and $(\bar{x} \pm s)$ is used to represent measurement data, t refers to test. After statistical analysis by SPSS22.0 statistical soft package, if the difference is significant and $P < 0.05$, there is statistically significance.

3. Results

3.1 Comparison of white blood cells in two groups during perioperative period

There was no difference in the normal rate of white blood cell count between the observation group and the control group ($P > 0.05$), as shown in **Table 1** below.

3.2 Comparison of the incidence of adverse reactions between the two groups

There was no adverse reaction in the observation group, which was significantly lower than 7.14% in the control group ($P < 0.05$), as shown in **Table 2** below.

Table 1. Comparison of white blood cells in two groups during perioperative period [n (%)]

Group	$<10 \times 10^9/L$	$\geq 10 \times 10^9/L$	$\geq 15 \times 10^9/L$
Control group (n=56)	53 (94.64)	2 (3.57)	1 (1.79)
Observation group (n=56)	52 (92.86)	2 (3.57)	2 (3.57)
t	0.152	0.000	0.343
P	0.696	1.000	0.558

Table 2. Comparison of incidence of adverse reactions between the two groups [n (%)]

Group	Nausea and vomiting	Headache	Vertigo	Incidence Rate
Control group (n=56)	2	2	0	4 (7.14)
Observation group (n=56)	0	0	0	0 (0.00)
χ^2	--	--	--	4.148
P	--	--	--	0.042

4. Discussions

There is a high probability of infection after gynecological surgery, which is closely related to the anatomical structure of the female reproductive system. The female genital tract is close to the urethra and anus, so it is vulnerable to the invasion of bacteria. Therefore, it is very important to prevent perioperative infection. It is necessary to choose more appropriate and effective postoperative infection suppression measures, apply more effective drugs, and take effective measures, in order to pay attention to the safety of drug use and prevent the adverse reactions of patients after taking^[3].

Data comparison showed that there was no difference in the normal rate of white blood cell count between the observation group and the control group ($P > 0.05$), and no adverse reaction in the observation group, which was significantly lower than 7.14% in the control group ($P < 0.05$). The reason is analyzed. Cefazolin sodium is a kind of chelating macromolecule synthesized by cefazolin molecule, sodium ion and water molecule. It is a sort of crystal structure with strong stability, which has more drug effect than common cefazolin and can effectively resist Gram-positive bacteria. Moreover, after administration, the sulfur-containing group can be wrapped into a kind of cavity similar to a tunnel with better stability, which can effectively control its contact with the rubber plug, and the adverse reactions after drug use can be effectively controlled. Therefore, the simple use of drugs can also control the Gram-positive bacteria, playing the effect of drug combination^[4]; on the analysis of drug use time, the rationality of preventive medication needs to be guaranteed. Generally speaking, the first 2-3 hours after the end of the operation belongs to the effective period and decision period of infection control.

In this study, 30 minutes before the operation, antibiotics intervention can be carried out at the first time after the incision appears, so as to ensure that the blood in the local tissue contains antibiotics during the incision exposure period. And it can kill the invasive bacteria during the operation to realize the effective control of infection and continuous medication 24-48 hours after the operation. It can continuously control postoperative

and prevent possible infection during wound recovery, so that infection control is more ideal after use^[5]; according to the analysis of adverse reactions, metronidazole is mainly used for anaerobic infection, but 15-30% of cases have adverse reactions, and the incidence of adverse reactions is higher, so without using the drug, the control effect of adverse reactions is more ideal^[6,7].

In conclusion, the use of cefazolin sodium in perioperative period of gynecological surgery can prevent infection, with high security, less adverse reactions and more valuable.

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