

# Apatinib, S-1 Combined with Paclitaxel Perfusion in the Treatment of Malignant Seroperitoneum of Gastric Cancer

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**Abstract: Objective:** To analyze the effect of apatinib, S-1 combined with paclitaxel perfusion on malignant seroperitoneum of gastric cancer. **Methods:** From December 2019 to May 2020, 172 patients with gastric cancer treated in our hospital were randomly divided into two groups: observation group and control group, 86 cases each. The control group adopted the method of S-1 combined with paclitaxel perfusion therapy in the treatment of malignant seroperitoneum of gastric cancer. The observation group was given oral apatinib on the basis of S-1 combined with paclitaxel perfusion therapy, and the dosage was 500 mg/d. **Results:** The total effective rate of treatment in the control group was 43.02%, while the total effective rate in the observation group was 69.77%; the drug resistance of the two groups of patients increased and the adverse reactions were low. **Conclusion:** Apatinib and S-1 combined with paclitaxel perfusion therapy can effectively improve the treatment effect, stabilize the patient's condition, increase the patient's drug resistance to adverse reactions, and have a good prognosis.

**Keywords:** Apatinib; S-1 combined with paclitaxel; Malignant seroperitoneum of gastric cancer

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According to the Global Cancer Report, gastric cancer takes the sixth place in the incidence of cancer, and the history of death from cancer shows that gastric cancer ranks the second place. Obviously,

gastric cancer has become one of the major diseases threatening human body<sup>[1]</sup>. China is a country with high incidence of gastric cancer. With the increase in the medical level and the emphasis on health, the mortality and morbidity rate of gastric cancer in our country are decreasing year by year, but there are still a large number of patients suffering from gastric cancer. Treatment methods and level of medication for gastric cancer are constantly improving. With the emergence of multiple treatments such as anti-angiogenesis, targeting drugs and immune drugs, the prognosis of patients with malignant seroperitoneum was better than before. Therefore, this paper analyzes the effect of apatinib, S-1 combined with paclitaxel perfusion in the treatment of malignant seroperitoneum of gastric cancer. It is now reported as follows.

## 1 Data and methods

### 1.1 Baseline data

From June 2019 to May 2020, 172 patients with gastric cancer treated in our hospital were randomly divided into two groups: observation group and control group, 86 cases each. In order to protect the personal rights of patients with gastric cancer. The patients themselves or their family members must sign an letter of consent before joining the group. This study has been approved by the Hospital Ethics Committee.

### 1.2 Methods

The control group adopted S-1 combined with paclitaxel perfusion therapy to treat malignant

seroperitoneum of gastric cancer. The observation group was given apatinib to be taken orally on the basis of S-1 combined with paclitaxel perfusion therapy. The dosage was 500 mg/d<sup>[2]</sup>.

### 1.3 Observation index

The recent treatment effects of the two groups was divided into completely relieved, partially relieved, stable condition, progressive condition, etc., and the adverse reactions of the two groups of patients were recorded.

### 1.4 Statistical methods

The data of this study was statistically processed by spss19.0 software. The enumeration data such as total

effective rate and incidence of adverse reactions were expressed in %, and the  $\chi^2$  was used for test;  $P < 0.05$  was considered statistically significant.

## 2 Results

### 2.1 Comparison of recent efficacy between two groups of patients

The efficacy of the two groups was analyzed and compared. The total effective rate of the control group was 43.02%, while that of the observation group was 69.77%. The efficacy of apatinib and S-1 combined with paclitaxel infusion treatment was improved. The experimental results are shown in Table 1.

**Table 1.** Comparison of recent efficacy between two groups patients

Groups	Control group(n=86)	Observation group(n=86)	$\chi^2$	P
Completely relieved	9(10.46)	22(25.58)	2.664	<0.05
Partially relieved	28(32.56)	38(44.19)	1.284	<0.05
Stable condition	32(37.21)	18(20.93)	0.762	<0.05
Progressive condition	17(19.77)	8(9.30)	1.556	<0.05
Total effective rate	37(43.02)	60(69.77)	5.540	<0.05

### 2.2 Comparison of incidence of adverse reactions between two groups of patients

The incidence of adverse reactions of two groups

of patients was analyzed and compared. Shown as Table 2, the drug resistance of two groups of patients increased.

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

Groups	Control group(n=86)	Observation group(n=86)	$\chi^2$	P
Nausea and vomiting	2(2.33)	2(2.33)	0.664	<0.05
Decreased leukocyte	6(6.98)	6(6.98)	0.284	<0.05
Decreased platelet	2(2.33)	2(2.33)	0.762	<0.05
Anemia	0(0.00)	2(2.33)	0.556	<0.05
Exhaustion	2(2.33)	4(4.65)	0.540	<0.05
Cacostomia	2(2.33)	2(2.33)	0.122	<0.05
hypertension	0(0.00)	4(4.65)	0.226	<0.05
Diarrhea	0(0.00)	2(2.33)	0.133	<0.05

## 3 Discussion

### 3.1 The mechanism of malignant seroperitoneum

According to the current research, the formation mechanism of malignant seroperitoneum has not been clearly understood. We can know from the previous studies that the currently known causes are the blockage of the lymphatic vessels due to the generation of tumor cells, resulting in blockage of lymphocyte backflow and the formation of seroperitoneum<sup>[3]</sup>. Due to the peritoneal metastasis, it damages the endothelial cells of blood vessels and

exacerbates the formation of seroperitoneum. The blood vessels become permeable and the performance is reduced because of the effect of endothelial cell damage. The patients themselves decreased physical fitness, such as changes in nutritional status and physical environment as blood pressure, leads to further worsen of seroperitoneum<sup>[4]</sup>. Among the causes mentioned above, peritoneal metastasis is the most complex and critical reason for the formation of malignant seroperitoneum. The study of the current mechanism for the formation of malignant seroperitoneum is rapidly progressing. Among the known studies, the research level has been reached the molecular layer. In the future research, the

research level will go further, and even completely grasp the cause of the formation of malignant seroperitoneum.

### 3.2 Treatment of malignant seroperitoneum

One of the clinical manifestations of advanced gastric cancer is the production of seroperitoneum. After the occurrence of seroperitoneum, the patient's body quality drops rapidly. In the current clinical methods for treating malignant seroperitoneum, the commonly used ones are diet control to relieve the patient's symptoms by controlling diet<sup>[5]</sup>; diuretic drugs are used to increase the frequency of patients going to the toilet and reduce the production of seroperitoneum. Abdomen is punctured to put in tubes for drainage of the seroperitoneum. Peritoneovenous shunt diverts the seroperitoneum and relieve the pressure in the abdominal cavity of the patient. The appropriate treatment is chosen according to the corresponding symptoms. However, in practical clinical treatment, methods of diuretics and abdominal puncture and drainage treatment are not effective for reducing the formation of seroperitoneum. The patients will even have adverse reactions caused by the puncture fluid, such as electrolyte disturbance and albumin reduction. Combined treatment methods can effectively increase the patient's drug resistance and reduce the incidence of adverse reactions.

Paclitaxel is a broad-spectrum anti-tumor drug that can fight tumors through a variety of pathways and has a unique anti-cancer mechanism<sup>[6]</sup>. Most studies have found that paclitaxel has a relatively large molecular mass, which can delay intraperitoneal absorption by intraperitoneal administration and prolong the action time. It has a high affinity with intraperitoneal proteins and can maintain high concentrations for a long time. Cisplatin is an effective anti-tumor drug that can effectively bind to the DNA of tumor cells, as well as damage tumor cells, and inhibit cell division. The concentration of cisplatin is higher than the plasma concentration of systemic chemotherapy through local administration. And it is one of the commonly used drugs in

intraperitoneal chemotherapy.

Apatinib is a small-molecule therapeutic drug, which contains an inhibitor of VEGFR tyrosine kinase<sup>[7]</sup>. It can effectively bind to ATP in body cells and block downstream signal transmission, effectively inhibiting neovascularization of tumor tissue. Therefore, it prevents the formation of malignant seroperitoneum.

In summary, apatinib and S-1 combined with paclitaxel perfusion therapy can effectively improve the efficacy. It can also stabilize the patient's condition as well as increase the patient's resistance to adverse reactions. And it has a good prognosis.

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