Clinical curative effect of oxaliplatin combined with flurouracil in the treatment of gastrointestinal tumor

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Abstract: Aiming at exploring clinical curative effect of oxaliplatin combined with flurouracil in the treatment of gastrointestinal tumor, this study divided 60 patients with gastrointestinal tumor into control and observation groups, each containing 30 patients. The observation group was treated with oxaliplatin combined with flurouracil, while the control was treated with FOLFOX4, i.e., intravenously dropping 85mg/m^2 Oxaliplatin (L-OHP), 200mg/m^2 calcium folinate (CF) and intravenously injecting 400mg/m^2 5-fluorouracil (5-Fu), and 600mg/m^2 5-Fu; then continuously performing intravenous drop infusion for 22h, every two weeks for a cycle. Hypodermic injection of granulocyte colony-stimulating factor (G-CSF) was conducted immediately when leukocytes occurred the III, IV degree of inhibition. The observation results of curative effect and negative reaction indicated higher effective rate with 83.33% in the observation and 50.00% in the control. Besides, in the observation, negative reactions possessed 10.00% that was much lower than 33.33% in the control. Thereby, the conclusion reached that the treatment of gastrointestinal tumor with oxaliplatin combined with flurouracil was worth promoting.

Keywords: Oxaliplatin; flurouracil; gastrointestinal tumor.

INTRODUCTION

Gastrointestinal tumor, a common malignant tumor in clinic, is usually treated by surgery and accompanied by drug chemotherapy after operation, aiming to completely remove residual tumors so as to avoid tumor progression and metastasis (Jun, 2014). The top choice of new medicine for treating gastrointestinal tumor is oxaliplatin, which can safely and effectively resist tumor in a wide space, with light negative reactions and high anti-tumor activities (Huiqiong *et al*., 2010). Meanwhile, via experiments *in vitro*, it is found that oxaliplatin and flurouracil have synergistic effects on ensuring excellent curative effect of gastrointestinal tumor treatment (Zhihe and Lingzhen, 2011). To analyze clinical curative effect of oxaliplatin combined with flurouracil in treating gastrointestinal tumor, experts have gained considerable achievements by clinical experiments.

Zhongkai Tian *et al*. did research on the clinical curative effect and toxicological response of oxaliplatin combined with flurouracil and calcium folinate in the treatment of later gastric carcinoma. The method was proved to be practical with its great curative effect and tolerance of toxicological response (Zhongkai and Jin, 2010). Yonggang Tan *et al*. adopted two methods to treat gastric carcinoma, i.e., regular surgery with post-operative chemotherapy and neoadjuvant chemotherapy with surgery. Based on the observation of control and treatment groups, the comparison between resection rate and radical cure rate showed that neoadjuvant chemotherapy (FOLFOX) with surgery did well in the treatment of advanced gastric carcinoma. FOLFOX had lighter toxicological response with higher resection rate and radical cure rate (Yonggang *et al*., 2012). Besides, Yong Jiao *et al*. analyzed curative effects and securities of metastatic colorectal cancer (MCRC) treatment on the basis of bevacizumab combined with oxaliplatin. The treatment result was similar to curative effect without related death. It was concluded that bevacizumab combined with oxaliplatin could control MCRC with high rate for a long time, which offered clinical experience for MCRC control (Yong and Wei, 2013).

A total of 60 patients with gastrointestinal tumor were divided into observation and control groups. The observation was treated with oxaliplatin combined with flurouracil, and FOLFOX4 treatment. Detailed report of analysis on clinical curative effect and negative reaction of both groups was presented as follows.

MATERIALS AND METHODS

General information

Clinical information of in-hospital patients with gastrointestinal tumor included gender and age. Male patients held 35 cases and female 25, whose ages ranged from 27 to 71 with (54.28±0.69) in average. The division of control and observation groups was in random. For the observation, the total patients were 30, among which 18 were male and 12 female; the age differed from 27 to 71 with (55.34±0.73) in average. As for the control, male patients occupied 17 cases and female 13; the average age was (54.67±0.77) with the range from 28 to 70. Measurable lesion was detected in patients from both groups after introscopic and pathological diagnosis which

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contained gastroscope, type-B ultrasonic, computed tomography (CT) and magnetic resonance imaging (MRI). The difference of general information in two groups was comparable without statistic significance.

Methods

The control group

FOLFOX4 was adopted in control group with slow intravenous infusion of L-OHP 85mg/m^2, CF 200mg/m^2, 5-Fu 400mg/m^2 and 5-Fu 600mg/m^2, orderly. The infusion lasted for 22 hours and 2-week was taken as a circle. Hypodermic injection of granulocyte colony-stimulating factor (G-CSF) was conducted immediately when leukocytes turned into the III, IV degree of inhibition.

The observation group

Before the chemotherapy, patients in observation group took antiemetic with general granisetron and warmed themselves after the intravenous infusion of vitamin B6. Besides, blood test, routine urine test and functional test of liver and kidney were carried out before and after the chemotherapy. Intravenously infuse oxaliplatin 85mg/m^2 provided by Jiang Su Heng Rui Medicine Co,. LTD for 2 hours each day. When the 2-hour intravenous infusion of CF 200mg/m^2 was completed, infusion of 5-Fu 400 mg/m^2 was followed by the 22-hour intravenous infusion of 5-Fu 600mg/m^2. The above processes were made once a day and twice a course.

Standards for curative effect

Standards for curative effect were performed in table 1.

STATISTICAL ANALYSIS

Statistical analysis was performed on all the data obtained with SPSS 17.0 software, and t test was performed on count data. If $P<0.05$, the result was considered to have statistical significance.

RESULTS

It could be observed from the curative effect that in observation group, 19 patients completely relieved and 6 locally relieved. As for control group, 10 cases with complete remission and 5 cases with local remission were found. After treatment, patients' condition in observation group was much more stable without deterioration. The effective rate with 83.33% in observation group was higher than that in control group with 50.00%, which was shown in table 2.

Comparison of negative reactions between two groups

Only one patient (3.33%) in observation group had negative reactions like peripheral neuropathy, hand-foot syndrome and gastrointestinal disorder. However, in control group, more negative reactions showed up thrombocytopenia and liver and kidney damages, except the above symptoms. The statistical results showed that the rate of negative reaction in observation group was 10.00% that was much lower than 33.33% in control group (table 3).

DISCUSSION

Gastrointestinal cancer, a common malignant tumor with 60% of postoperative two-year recurrence or metastasis rate, is mostly removed by surgery in a traditional view; however, comprehensive treatment focused on chemotherapy becomes the main palliative treatment means (Yingchun, 2012). According to the report by Hongbing Han (Hongbing, 2010), the overall effective rate of FOLFOX4 in treating gastrointestinal tumor reached 58%. Besides, the acute toxic actions were often noticed as temple peripheral neuropathy whose clinical performances were serious acroparesthesia, inverse of acute and abnormal feeling of throat, and gastrointestinal reaction. Compared to the use of oxaliplatin combined with flurouracil, FOLFOX4 used drugs more frequently since it had to apply chemotherapy pump, which had greater influence on patients' psychology. On the contrary, oxaliplatin combined with flurouracil was more likely to be accepted by patients because it is convenient and rarely used.

Gastrointestinal tumor is a common tumor in alimentary canal, whose occurrence increases every year and turns into youth due to changes of dietary habits (Xin *et al*., 2010). Therefore, various methods have been figured out to treat gastrointestinal tumor, such as surgery, chemotherapy, radiotherapy, chemotherapy and radiotherapy before surgery, and medication. Some patients are table to be treated via surgery, and if they do, 90% of them can recover. As for patients in the progression of gastrointestinal tumor, surgery is also suitable for some of them. Though surgery can improve the living quality of patients with advanced gastrointestinal tumor, the implementation of surgery must depend on patients' real situations. The advancement of iatrotechnique enables the application of laparoscope in radically treating gastric carcinoma and colorectal carcinoma (Yanjie *et al*., 2011). This method should be publicized because it brings less pain and trauma, and patients who take it with less hemorrhage will recover soon. On the other hand, chemotherapy is able to kill cancer cells in blood circulation and control tumor to slow down tumor relapse and metastasis. Especially for patients in the advanced stage, chemotherapy controls the growth of cancer tissues to enhance the life of patients and delay their death. But patients' conditions must be put in the first position when carrying out chemotherapy, because patients need positive attitude towards the side effects brought by chemotherapy, such as emesia and alopecia (Jiapei *et al*., 2010). At present, medication can effectively control tumor and reduce chemotherapy actions with better curative effect.

Table 1: Standards for curative effect

Curative effects	Effect description
Complete remission	New lesion did not show up more than one month after the complete removal of lesion
Local remission	Lesion reduced more than 50% without the occurrence of new lesion for over one month.
Stable	Lesion promoted, but less than 25%.
Advanced	Lesion promoted with new lesions.

Table 2: Comparison of clinical curative effect between two groups

Groups	Complete remission	Local remission	Stable	Advanced	Overall effective rate (%)
Observation (number=30)	19 (63.33)	6 (20.00)	4 (13.33)	1 (3.33)	25 (83.33)*
Control (n=30)	10 (33.33)	5 (16.67)	7 (23.33)	8 (26.67)	15 (50.00)

*P<0.05, compared with control group. Overall effective rate is equivalent to complete remission rate plus local remission rate.

Table 3: Comparison of negative reactions between two groups (case/%)

Groups	Peripheral neuropathy	Thrombocyt openia	Liver and kidney damages	Hand-foot syndrome	Gastrointestinal disorder	Overall reactions
Observation (number=30)	1(3.33)	0	0	1 (3.33)	1 (3.33)	3 (10.00)*
Control (n=30)	3 (10.00)	1 (3.33)	2 (6.67)	2 (6.67)	2 (6.67)	10 (33.33)

*P<0.05, compared with control group.

The signal use of flurouracil, the main drug for combined chemotherapy of gastrointestinal tumor, possessed 20% of effective rate (Jinming *et al*., 2010). CF was a biochemical modulator of flurouracil, which combined with flurouracil, pushed the combination of deoxynucleotide and thymidylate synthetase to fully play the effect of flurouracil as a therapeutic drug (Zongli *et al*., 2014; Rucai and Siyi, 2011). Medical researchers did approve the clinical curative effect of the intravenous drip of flurouracil. However, the combination of CF and flurouracil caused negative reactions easily. For example, the combination brought about hypofunction of body organs. Besides, other systemic diseases would take advantage of the combination to reduce the toleration of medicines for chemotherapy, aggravating negative reactions. Thereby, doses of chemotherapy must be lowered rationally in clinical treatments (Jianzhong *et al*., 2012). Oxaliplatin, the third generation of new platinum anti-cancer drugs, took DNA as the target spot and covalently bonded with G in DNA chain to create chain coupling, inter-chain coupling and protein chain of DNA. After that, DNA could not complete its replication for its damage, ending up with the apoptosis of tumor cells (Zhiqiang and Ning, 2012). The curative effect of oxaliplatin combined with flurouracil in treating gastrointestinal tumor was remarkable with better treatment results. Oxaliplatin combined with flurouracil enabled to destroy tumor cells to extend patients' survival and enhance patients' life (Tiebi and Feng, 2014).

This study treated 60 patients with gastrointestinal tumor, finding that the overall effective rate in observation group with 83.33% was much higher than 50.00% in control group. Besides, the rate of negative reactions with 10.00% in observation group was lower than 33.33% in control group. Negative reactions referred to eripheral neuropathy, hand-foot syndrome, gastrointestinal disorder, thrombocytopenia and, liver and kidney damages. The differences of overall effective rate and negative reactions had statistic significance with P<0.05. A research reported 71.40% of overall effective rate of oxaliplatin combined with flurouracil and calcium folinate in treating 42 patients with gastrointestinal tumor. In the research, negative reactions, including bone marrow control, nausea and vomiting, peripheral neurotoxicity, and mucositis, relieved with symptomatic treatment (Zhu *et al*., 2014)

CONCLUSION

In conclusion, oxaliplatin combined with flurouracil in the treatment of gastrointestinal tumor descends tumor stage. The combination narrows tumors in different degrees, and reduces local relapse as well, positively affecting advanced gastrointestinal tumor. In addition, patients are treated in a best way with observations of tumor change and timely adjustment of treatment plans. Oxaliplatin combined with flurouracil in the treatment of gastrointestinal tumor takes effect quickly with less negative reactions and greater toleration of patients. Hence, it can be summarized that this method is worth clinical promotion for its significant curative effect.

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