Effects of Two Kinds of Neoadjuvant Chemotherapy on Lymphatic Density and Vascular Endothelial Growth Factor Expression in Cervical Cancer

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Abstract: Objective: to explore and analyze the effects of systemic intravenous chemotherapy and internal iliac artery embolization and perfusion chemotherapy on the microlymphatic vessel density and vascular endothelial growth factor expression in cervical cancer and its clinical efficacy. Methods: 110 cases of cervical cancer patients who were treated in our hospital from may 2018 to april 2019 were selected as the subjects. They were randomly divided into the reference group and the study group, with 55 cases in each group. Patients in the reference group were given systemic intravenous chemotherapy, while those in the study group were given intra-iliac artery embolization and perfusion chemotherapy. The effect of microlymphatic vessel density and vascular endothelial growth factor expression in the two groups were compared, as well as the actual treatment effect of the patients. Results: the total effective rate of the study group receiving internal iliac artery chemoembolization was 72.7%, and that of the reference group receiving systemic intravenous chemotherapy was 50.9%. The effective rate of the study group was significantly higher than that of the reference group, with a statistically significant difference ($p<0.05$). There was no significant difference in vegf-a, c and d between the two groups before treatment. After treatment, vegf-a and c in the reference group showed no significant changes, and vegf-d was significantly decreased ($p<0.05$). There was no significant change in vegf-a in the reference group, and vegf-c and d were significantly decreased. The vegf-c and d in the study group were (3.31±1.60) and (3.99±1.18), respectively, significantly lower than those in the reference group, with statistically significant differences ($p<0.05$). There was no significant difference in lmvd level between the two groups before treatment ($p>$, 0.05). After treatment, the lmed level of the study group was (5.20±2.11), significantly lower than that of the reference group ($p<0.05$). Conclusion: in the treatment of cervical cancer patients, the use of internal iliac artery chemoembolization can significantly reduce the density of lymphatic vessels and the expression of vascular endothelial growth factor, achieve better clinical efficacy, has a higher clinical promotion and application value.

1. Introduction

With the changes in people's lifestyle and environmental factors, the incidence of various types of cancer is increasing, becoming an important threat to public health. Cervical cancer is the second most common malignancy in women after breast cancer. With the development of medical technology, cervical cancer is detected in the early and middle stages of the military more and more, this treatment provides a wider space. Especially with the application of modern chemotherapy drugs and various new drug delivery technologies, including systemic intravenous chemotherapy and internal iliac artery embolization and perfusion chemotherapy, the efficacy of neoadjuvant chemotherapy for early and middle stage patients has become better and better. Studies have shown that vascular endothelial growth factor (vegf) and microlymphatic vessel density (lmed) have important effects on patients with cervical cancer. In order to have a more comprehensive understanding of the effects of the two chemotherapy methods on vegf and lmed and the specific efficacy, our hospital conducted this study. The report is as follows:

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2. Materials and Methods

2.1 General Materials

110 cases of cervical cancer patients who were treated in our hospital from May 2018 to April 2019 were selected as the subjects. All patients have been diagnosed with cervical cancer. Patients were randomly divided into the reference group and the study group, each with 55 cases. The reference group patients ranging in age from 43 to 72, the average was (60.3 + 5.1) years, according to the patients with FIGO staging, including 20 cases for I b2 and II a period of 15 cases, 20 cases II b period. The study group patients ranging in age from 43 to 72, the average was (60.3 + 5.1) years, according to the patients with FIGO staging, for I b2 phase 22 cases, II a period of 14 cases, 19 cases II b period. There was no significant difference in general information and disease status between the two groups, $P < 0.05$.

2.2 Inclusion Criteria

(1) all patients included in the study were histopathologically confirmed as cervical cancer; (2) all patients included in the study had no contraindications of chemotherapy and surgery; (3) all patients received other treatment before receiving treatment in our hospital; (4) all patients and their families are aware of the content and purpose of this study and are willing to participate.

2.3 Methods

The two groups received different neoadjuvant chemotherapy regimens.

Patients in the reference group received systemic intravenous chemotherapy. The specific treatment plan is moxibusin + carboplatin, and the dosage standard of moxibusin is 135-175mg/m2. The dosage of carboplatin is 400mg. The interval between chemotherapy was 4 weeks. All chemotherapy is intravenous.

Patients in the study group received chemoembolization of the internal iliac artery. The regimens and methods of the first chemotherapy were exactly the same as those of the reference group. Starting from the second chemotherapy after 4 weeks, carboplatin 400mg was treated with internal iliac artery chemotherapy, while lidong was treated with intravenous infusion. This model was used in subsequent chemotherapy. The interval between chemotherapy treatments was 4 weeks.

Patients in both groups received chemotherapy for three consecutive times, and then continued treatment was selected according to the treatment status.

2.4 Observation Indicators

(1) VEGF before and after treatment was compared between the two groups, and vegf-a, C and D were compared respectively. (2) LMVD values of the two groups before and after treatment were compared. (3) compare the clinical efficacy of the two groups of patients after treatment. The efficacy criteria were: after treatment, the imaging examination showed that the tumor was basically gone, the symptoms were completely gone, and no new lesions appeared within four weeks, which was regarded as complete remission (CR). The tumor shrank by more than half, the symptoms improved significantly, and no new lesions appeared within four weeks, which were considered as significant remission (PR). The tumor size did not increase by more than a quarter, and no new lesions appeared within four weeks, which was called stable (SD). The size of the tumor increased by more than a quarter, and the appearance of new lesions was considered as progressive (PD). The total response rate includes complete remission and significant remission.

2.5 Statistical Methods

SPSS20.0 was used to conduct statistical analysis on the relevant indicators of the two groups of patients in the study, t test was used for the measurement data, and χ^2 test was used for the count data, with $P<0.05$ as the criterion of statistical significance.

3. Results

3.1 Vegf Level Before and after Treatment

As shown in table 1, there was no significant difference in vegf-a, C and D between the two groups before treatment. After treatment, vegf-a and C in the reference group showed no significant changes, and vegf-d was significantly decreased (P<0.05). There was no significant change in vegf-a in the reference group, and vegf-c and D were significantly decreased. In addition, after treatment, vegf-c and D in the study group were (3.31±1.60) and (3.99±1.18), respectively, significantly lower than those in the reference group, with statistically significant differences (P<0.05).

Table 1 Vegf Levels Before and after Treatment in the Two Groups

indicator	the reference group(n=55)		the study group(n=55)	
	before treatment	after treatment	before treatment	after treatment
VEGF-A	5.60±1.58	5.51±1.33	5.83±1.64	5.62±1.37
VEGF-C	6.20±1.33	5.89±0.98	6.83±1.21	3.31±1.60*#
VEGF-D	6.49±1.39	4.40±0.94*	6.58±1.50	3.99±1.18*#

Note: *P<0.05 compared with pre-treatment, and #P<0.05 compared with the reference group.

3.2 Lmvd Level Before and after Treatment

As shown in table 2, there was no significant difference in LMVD level between the two groups before treatment (P>, 0.05). After treatment, the LMED level of the study group was (5.20±2.11), significantly lower than that of the reference group (P<0.05).

Table 2 Lmvd Level Before and after Treatment

group	n	before treatment	after treatment	P
the study group	55	9.08±3.32	5.20±2.11	<0.05
the reference group	55	8.91±3.21	6.62±2.48	<0.05
P		>0.05	<0.05	

3.3 Clinical Efficacy of the Two Groups

As shown in table 3 below, the total effective rate of the study group receiving internal iliac artery chemoembolization was 72.7% significantly higher than that of the reference group receiving systemic intravenous chemoembolization (50.9%), with statistically significant difference (P<0.05).

Table 3 Comparison of Clinical Efficacy between the Two Groups

group	n	CR	PR	stable	progress	total effective rate
the study group	55	14(25.5)	26(47.3)	10(18.2)	5(9.1)	40(72.7)
the reference group	55	5(9.1)	23(41.8)	18(32.7)	9(16.4)	28(50.9)
P		<0.05	>0.05	>0.05	>0.05	<0.05

4. Discussion

Currently, clinical treatment of cervical cancer is usually combined with chemotherapy and surgery; For early patients, surgery plays a major role; For advanced patients, radiotherapy plays a major role. Especially with the continuous development of chemotherapy technology, the current application range is more and more wide, and its effect is better and better; In particular, neoadjuvant chemotherapy, in the clinical use of the process of the effectiveness of the medical staff and patients have been unanimously recognized.

In this study, we can see that the total effective rate of the study group receiving internal iliac artery chemoembolization was 72.7% significantly higher than that of the reference group receiving systemic intravenous chemoembolization (50.9%), with statistically significant difference (P<0.05). In addition, in terms of the effects of two neoadjuvant chemotherapy on VEGF and LMVD, the effect of intra-iliac arterial embolization and perfusion chemotherapy was significantly stronger

than that of systemic intravenous chemotherapy.

To sum up, in the treatment of cervical cancer patients, the use of internal iliac artery embolization perfusion chemotherapy can more significantly reduce the density of lymphatic vessels and the expression of vascular endothelial growth factor, obtain more ideal clinical effect, has a higher clinical promotion and application value.

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