

Effects of neoadjuvant chemotherapy combined with cervical cancer radical surgery for the treatment of cervical cancer.

Liyan Duan*, Kequn Zhang, Yanqiu Wang, Jian Jin, Junyan Xie, Xiang Luo, Qiaozi Deng

The First Affiliated Hospital, and College of Clinical Medicine of Henan University of Science and Technology, Luoyang, PR China

Abstract

Objective: To investigate and analyze the clinical efficacy of neoadjuvant chemotherapy combined with cervical cancer radical surgery for the treatment of cervical cancer.

Method: Sixty-four patients with cervical cancer who visited our hospital from January 2015 to December 2016 were randomly selected and randomly divided into observation (n=32) and control groups (n=32). The observation group was treated with neoadjuvant chemotherapy combined with cervical cancer radical surgery, and the control group was given only cervical cancer radical surgery. Clinical effects between patients in the two groups were compared.

Results: Intraoperative blood loss, lymph node metastasis rate, and incidence rate of positive vaginal margin in the observation group were significantly lesser than those in the control group (P<0.05). The clinical efficacy of patients in the observation group was significantly higher than that of the control group (P<0.05). After the observation group received treatment, lymphatic cysts were found in two patients, namely, edema of lower limb in one, and urinary retention in one; moreover, the incidence rate of complications was 12.5%. After the control group received treatment, lymphatic cysts were found in three patients, edema of lower limb in three, and urinary retention in two, and the incidence rate of complications was 25%. The incidence rate of complications was significantly lower in the observation group than in the control group ($\chi^2=5.128$, P<0.05).

Conclusion: Neoadjuvant chemotherapy combined with cervical cancer radical surgery show good clinical efficacy for treating cervical cancer, and because of the low incidence rate of complications, it has clinical application value.

Keywords: Neoadjuvant chemotherapy, Cervical cancer radical surgery, Cervical cancer, Application effect.

Accepted on Sep 27, 2017

Introduction

Cervical cancer refers to malignant tumor formation in the uterus, vagina, and cervical canal. It is one of the most common malignant tumors among women, and because of its high incidence rate and mortality, it seriously threatens patients' lives [1,2].

Surgery is one of the main methods for treating cervical cancer, but the incidence rate of complications postoperatively, as well as metastasis and recurrence, is high [3].

Studies have indicated that neoadjuvant chemotherapy before cervical cancer radical surgery can effectively improve therapeutic effects [4].

Therefore, in this study, the clinical efficacy of neoadjuvant chemotherapy combined with cervical cancer radical surgery for the treatment of cervical cancer was observed and analyzed to provide reference for clinical treatments. The report is shown below.

General Information and Method

General information

Sixty-four patients with cervical cancer who visited our hospital from January 2015 to December 2016 were randomly selected. This study was conducted with the consent of our hospital's medical ethics committee and patients signed informed consent. A digital randomization method was used to divide patients into observation and control groups, with each having 32 patients. Patients in the observation group were aged 27-66 y, with 17 males and 15 females. The average age was 40.67 ± 4.65 y. Pathological type: 21 patients with squamous cell carcinoma and 11 patients with adenocarcinoma; clinical stage: 19 patients with Ib type and 13 patients with IIa type. Patients in the control group were aged 29-67 y, with 18 males and 14 females. The average age was 41.14 ± 4.77 y. Pathological type: 20 patients with squamous cell carcinoma and 12 patients with adenocarcinoma; clinical stage: 18 patients with Ib type and 14 patients with IIa type. The two

groups of patients showed no significant differences in sex, age, clinical stage, and other general information ($P>0.05$), thus they had comparability.

Methods

The observation group was treated with neoadjuvant chemotherapy with cervical cancer radical surgery. Specific procedures are as follows: patients took 10 mg dexamethasone orally 6 or 12 h before chemotherapy to prevent allergy. A total of 200 mg/m² paclitaxel injection (Hospira Australia Pty Ltd.; registration certificate number H20090175; specification: 5 ml: 30 mg/piece) was diluted into 500 ml 0.9% sodium chloride injection; 50 mg/m² cisplatin injection (Jiangsu Hansoh Pharmaceutical Corporation; National Drug Certificate Number H20040813; specification: 50 mg/50 ml) was diluted into 500 ml 5% glucose solution for intravenous infusion. One course of treatment lasted for three weeks, and two courses were implemented. During chemotherapy period, the vital signs of patients were closely monitored. If adverse reactions occurred, they were treated in time, and extensive hysterectomy and pelvic lymphadenectomy were performed three weeks after the end of chemotherapy. The control group was provided with only cervical cancer radical surgery treatment, and the specific treatment procedures were the same as in the observation group.

Observation index

Intraoperative blood loss, lymph node metastasis rate, incidence rate of positive vaginal margin, clinical efficacy, and incidence rate of complications of patients in the two groups were observed. Clinical efficacy was divided into complete remission, partial remission, stability, and progress. Total effective rate was calculated as follows: (complete remission + partial remission)/total number of patients \times 100%.

Table 2. Comparison of clinical efficacy between the two groups.

Group	Complete remission	Partial remission	Stability	Progress	Total effective rate
Observation group (32)	6 (18.75%)	22 (68.75%)	4 (12.5%)	0 (0%)	28 (87.5%)
Control group (32)	5 (15.63%)	17 (53.13%)	8 (25%)	2 (6.25%)	22 (68.75%)
χ^2	0.342	4.699	5.128	6.452	10.286
P	0.559	0.03	0.023	0.011	0.001

Comparison of the incidence rate of complications between the two groups

After the observation group received treatment, lymphatic cysts were found in two patients, edema of lower limb in one, and urinary retention in one, and the incidence rate of complications was 12.5%. After the control group received treatment, lymphatic cysts were found in three patients, edema of lower limb in three, and urinary retention in two, and the incidence rate of complications was 25%. Incidence rate of

Statistical analysis

SPSS 22.0 was adopted to deal with the data in this paper. “ $\bar{x} \pm S$ ” represented measurement data, t-test was carried out between groups, “%” represented count data, and χ^2 was carried out between groups. Statistical significance was considered at $P<0.05$.

Results

Comparison of treatment between patients in the two groups

Intraoperative blood loss, lymph node metastasis rate, and incidence rate of positive vaginal margin in the observation group were significantly lower than those in the control group ($P<0.05$) (Table 1).

Table 1. Comparison of treatment between patients in the two groups.

Group	Intraoperative blood loss	Lymph node metastasis	Positive vaginal margin
Observation group (32)	387.73 \pm 30.27	2 (6.25%)	1 (3.13%)
Control group (32)	551.14 \pm 33.75	5 (15.63%)	4 (12.5%)
χ^2	20.392	4.515	6.093
P	0	0.034	0.013

Comparison of clinical efficacy between patients of the two groups

Total effective rate in the observation group was 87.5% and 68.75% in the control group. Clinical efficacy in the observation group was significantly higher than that in the control group ($P<0.05$), as shown in Table 2.

complications was significantly lower in the observation group than in the control group ($\chi^2=5.128$, $P<0.05$) (Table 3).

Table 3. Comparison of the incidence rate of complications between the two groups.

Group	Lymphatic cysts	Edema of lower limb	Urinary retention	Incidence rate
Observation group (32)	2	1	1	4 (12.5%)
Control group (32)	3	3	2	11 (25%)
χ^2				5.128

P	0.021
---	-------

Discussion

Cervical cancer is the most common malignant tumor among females, and women aged 40-50 y are at high risk of acquiring it. Its main clinical symptoms are vaginal bleeding, increased vaginal discharge, frequent micturition, and urgent urination [5]. The incidence rate of cervical cancer has increased yearly, thereby posing serious threats to the health of women. The etiology of cervical cancer is unclear; it may be related to viral infection, number of deliveries, smoking, and other factors. Cervical cancer has no obvious clinical symptoms at the early stage, which may lead to missed diagnosis or misdiagnosis [6]. As the lesion develops, the cancer tissue gradually spreads to adjacent organs and lymphatic vessels. Early stage cervical cancer is usually treated with surgery. Laparotomy is often used in clinical treatment; however, it provides great trauma to patients and has a long wound-healing cycle. Moreover, its effectiveness may be affected by poor visual field during operation, thereby seriously affecting the survival quality of patients. Radical surgery is mainly used for the treatment of early stage cervical cancer [7]. Some studies have indicated that neoadjuvant chemotherapy with surgical treatment can improve the survival rate of patients.

Neoadjuvant chemotherapy for cervical cancer is a concept proposed in the 1980s. Patients with cervical cancer are given two to three courses of chemotherapy before surgery or radiotherapy and then treated with radical surgery or radical radiotherapy. The purpose and significance of neoadjuvant chemotherapy for cervical cancer are [8]: (1) It can reduce the tumor volume and increase tumor resection rate; (2) Reduce the hypoxic cells in tumor tissues and improve radiotherapy efficacy; (3) Reduce the viability of cancer cells and intraoperative dissemination and postoperative metastasis; (4) Eliminate subclinical lesions and reduce their recurrence and metastasis. The tumor vascular bed is not destroyed, thus chemotherapy drugs can easily enter the tumor, improving the outcome. Moreover, the toxicity is less than that of concurrent chemoradiotherapy. Neoadjuvant chemotherapy for cervical cancer is mainly used for treating patients with locally advanced cervical cancer and high-risk adverse prognostic factors. Locally advanced cervical cancer mainly refers to cervical cancer (huge block type) with local tumor diameter greater than 4 cm [9]. In addition to the large local tumor, adverse prognostic factors include poor histological differentiation, adenosquamous carcinoma of the cervix, and mucinous adenocarcinoma. Some reports have indicated that the five-year survival rate of patients at Ib1 stage (with local tumor diameter less than 4 cm) is 80%-90%, whereas that at Ib2 stage (with local tumor diameter greater than 4 cm) is reduced to 50%-60%. The response rate of neoadjuvant chemotherapy for cervical cancer is 45%-95%, and the long-term survival rate is improved as well [10].

In this study, the clinical efficacy of neoadjuvant chemotherapy combined with cervical cancer radical surgery for the treatment of cervical cancer was observed and analyzed. Intraoperative

blood loss, lymph node metastasis rate, and incidence rate of positive vaginal margin of the observation group were significantly less than those of the control group ($P < 0.05$). Clinical efficacy in the observation group was significantly higher than that in the control group ($P < 0.05$). Incidence rate of complications was significantly lower in the observation group than in the control group ($P < 0.05$). The observation group had better clinical efficacy because preoperative neoadjuvant chemotherapy reduced the tumor cell viability, tumor volume, tumor staging, and metastasis and recurrence and removed and inhibited metastatic lesions.

Conclusion

Thus, neoadjuvant chemotherapy combined with cervical cancer radical surgery has good clinical efficacy for treating cervical cancer, and because of the low incidence rate of complications, it has clinical application value.

References

1. Sui W, Lim EA, Joel Decastro G, McKiernan JM, Anderson CB. Use of adjuvant chemotherapy in patients with advanced bladder cancer after neoadjuvant chemotherapy. *Bladder Cancer* 2017; 3: 181-189.
2. Khamesipour F, Tajbakhsh E. Analyzed the genotypic and phenotypic antibiotic resistance patterns of *Klebsiella pneumoniae* isolated from clinical samples in Iran. *Biomed Res-India* 2016; 27: 1017-1026.
3. Kadioglu Y, Gulaboglu M, Ozturk M, Dogan N. Determination of fluoride by using Ion Selective Electrode (ISE) method in urine of healthy volunteer and patients before-after sevoflurane anesthesia. *Lat Am J Pharm* 2015; 34: 1658-1663.
4. Gu C, Wang R, Pan X, Huang Q, Luo J, Zheng J, Wang Y, Shi J, Chen H. Comprehensive study of prognostic risk factors of patients underwent pneumonectomy. *J Cancer* 2017; 8: 2097-2103.
5. Hu J, Yue Q, He S, Tan Y, Wang F, Li X, Qiu X. Effects of sevoflurane on the activities of CYP450 in rats using a cocktail approach. *Lat Am J Pharm* 2013; 32: 1053-1057.
6. Davuluri R, Jiang W, Fang P, Xu C, Komaki R, Gomez DR, Welsh J, Cox JD, Crane CH, Hsu CC, Lin SH. Lymphocyte nadir and esophageal cancer survival outcomes after chemoradiation therapy. *Int J Radiat Oncol Biol Phys* 2017; 99: 128-135.
7. Haque N, Uddin AFMK, Dey BR, Islam F, Goodman A. Challenges to cervical cancer treatment in Bangladesh: The development of a women's cancer ward at Dhaka Medical College Hospital. *Gynecol Oncol Rep* 2017; 21: 67-72.
8. Hafiz TA, Mubarak MA. The potential role of *Ziziphus spina-christi* leaf extracts against *Plasmodium berghei*-induced liver and spleen injury. *Biomed Res-India* 2016; 27: 1027-1032.
9. Lucidi A, Windemut S, Petrillo M, Dessole M, Sozzi G, Vercellino GF, Baessler K, Vizzielli G, Sehouli J, Scambia G, Chiantera V. Self-reported long-term

autonomic function after laparoscopic total mesometrial resection for early-stage cervical cancer: A multi-centric study. *Int J Gynecol Cancer* 2017; 27: 1501-1507.

10. Llewelyn M, Taylor A. Re-irradiation of cervical and endometrial cancer. *Curr Opin Oncol* 2017; 29: 343-350.

***Correspondence to**

Liyan Duan

The First Affiliated Hospital

And College of Clinical Medicine of Henan University of Science and Technology

Luoyang

PR China