

A Study on the Effect of Cervical Conization on the pregnancy and Cervical Length after Pregnancy of Patients with High-grade Cervical Intraepithelial Neoplasia

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ARTICLE INFO

Article history:

Published online: 30th Nov., 2017

Key words:

High-grade cervical intraepithelial neoplasia

Cervical conization

Cervical length

ABSTRACT

Objective: To investigate the effect of cervical cone excision on cervical canal length in patients with high cervical intraepithelial neoplasia. **Methods:** 30 cases of patients with high-grade cervical intraepithelial neoplasia who admitted in our hospital and underwent cervical cone resection were selected as the experimental group and 30 cases of healthy pregnancy at the same period were selected as the control group. The experimental group was given cervical conization. The cervical canal length of patients in the experimental group, the cervical canal length of successful pregnancy patients, pregnancy and pregnancy outcome pregnancy of the two groups were detected after treatment. **Results:** Compared with the control group, the cervical tube length level was significantly lower in the experimental group after treatment ($P<0.05$); the cervical tube length of successful pregnancy underwent cervical conization at 12 weeks, 20 weeks, 28 weeks after pregnancy showed no significant difference ($P>0.05$), the successful pregnancy rate of experimental group after surgery was

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Fund: Shaanxi Provincial Natural Science Foundation project (BK200408)

lower ($P < 0.05$), the incidence of pregnancy with preterm premature rupture of membranes, umbilical cord around the neck prematurity and cases of term delivery number

between experimental and control groups showed no significant difference between two groups ($P > 0.05$). **Conclusion:** The cervical canal length level of patients with high-grade cervical intraepithelial neoplasia was lower after cervical conization, the successful pregnancy rate was low, the pregnancy cervical tube length and the rate of preterm birth had no difference compared with normal pregnant women.

0 Introduction

Cervical intraepithelial neoplasia (cervical intraepithelial neoplasia, CIN) is a group of cancer closely associated with invasive cervical carcinoma^[1]. With the progress of medicine, the detection rate of cervical intraepithelial neoplasia increased obviously. Therefore, early effective treatment of cervical intraepithelial neoplasia in cervical precancerous lesions can significantly reduce the incidence rate of cervical cancer^[2]. At present, the clinical treatments of cervical intraepithelial neoplasia include refrigeration, laser, drugs, ring electric resection, cervical conization, hysterectomy and many other methods. The above treatments should be selected according to the level of the lesion, the scope of the lesion, the age of the patient and the condition of the marriage^[3]. For young people who need to retain fertility or are unwilling to hysterectomy, as well as those with high levels and small invasive cancers, cervical conization is the main treatment for cervical precancerous lesions, including cervical cryotomy conization, loop electrosurgical excision procedure, laser electrotomy, etc. which are the ideal treatments for women with fertility requirements or who are unwilling to perform a hysterectomy^[4]. Cervical conization is the first choice for the treatment of high levels and small invasive cervical cancers, and it can also be used as the preferred treatment for the lesions that cannot be cut off by loop electrosurgical. The indications of cervical conization in treatment are cervical carcinoma in situ, adenocarcinoma, and invasive cervical carcinoma with fertility requirements^[5]. By observing the changes of cervical canal length in patients with high cervical

intraepithelial neoplasia, the effect of cervical conization and the length of cervical canal is studied. The report is as follows.

1 Information and methods

1.1 Clinical Data

30 cases of patients with high-grade cervical intraepithelial neoplasia who received treatment in our hospital from March 2014 to December 2015 were selected as the experimental group. All patients conformed to the clinical diagnostic criteria of cervical intraepithelial neoplasia. The cervix of the patient is intact, no other cervix or gynecological disease; no major diseases of major organs, no infection-free disease, no skin disease, no blood system disease and no surgical contraindication. Among them, the average age of patients in the experimental group was (34.32 ± 1.57) years old. 30 cases of healthy pregnancy at the same period were selected as the control group and the average age was (32.43 ± 1.29) years old. All patients were diagnosed with cervical intraepithelial neoplasia CINII, CINIII with the cytology, colposcopy, cervical biopsy and postoperative pathology of cervical conization. There was no significant difference in general data between the two groups ($P > 0.05$).

1.2 Methods

1.2.1 Treatment Methods

The patients in the experimental group were anesthetized by combined spinal and epidural anesthesia or intravenous anesthesia, and the vital signs were monitored. After vaginoscopy, for the patients with superficial cervical lesions, the conization with

wide cone-bottom and light cone-height were used. For patients with cervical tube lesions, the conization with wide cone-bottom and deep cone-height were used. Preoperative ice acetic acid and iodine test were performed to patients. The type and width of the cervical conization were determined according to the range of unpigmentation and the degree of lesion. Cut at the width of 5 mm outside the area iodine does not stain. Patients with low-grade lesions should have a depth of 4mm for the removal of cervical tissue and 10 to 15 mm of cervical tube length. The apical and lateral rim tissues should be resected, without residue.

1.2.2 Detection of the cervical tube length before and after operation in experimental group

Two groups of patients were placed in lithotomy position before and after the treatment, using ultrasonic diagnostic apparatus to measure the the distance from the cervical tube mouth to the outside which is repeated three times.

1.2.3 Detection of the cervical canal length between successful pregnancy

After 6 months of operation in the experimental group, the cervical tube length was measured for the patients with successful pregnancy and at the same period of pregnancy in the control group.

1.2.4 Detection of pregnancy between two groups

The number of successful pregnancies and the number of infertile cases were statistically compared between the subjects in the control group and those after the operation in the experimental group.

1.2.5 Detection of the pregnancy outcome between two groups

The number of preterm premature rupture of membranes, the umbilical cord around the neck prematurity, and the cases of term delivery number between the subjects in the control group and in the successful pregnancies of the experimental group after the operation were statistically compared.

1.3 Statistical analysis

SPSS 19.0 Statistical software was used to analyze. The metrological data is expressed by mean \pm standard deviation ($\pm s$), using T-Test. The count data is expressed in %, using χ^2 test. The difference is statistically significant when $P < 0.05$.

2 Results

2.1 Detection of the cervical tube length before and after operation in experimental group

Compared with the control group , the cervical tube length level was significantly lower in the experimental group after treatment ($P < 0.05$). See table 1 for specific data. In control group, the cervical tube length were respectively (4.16 \pm 0. \$number) cm, (4.47 \pm 1. \$number) cm, (4.31 \pm 0. \$number) cm at 12 weeks, 20 weeks and 28 weeks after pregnancy. In experimental group, the cervical tube length were respectively (4.14 \pm 0.89)cm 、 (4.33 \pm 1.19)cm 、 (4.23 \pm 0.78)cm at 12 weeks, 20 weeks and 28 weeks after pregnancy. There was no statistically significance between the difference of two groups ($P > 0.05$). See table 2.

Table 1 Comparison of the cervical canal length between two groups before and after treatment(cm, $\bar{x} \pm s$)

	cervical canal length	t	P
Before treatment	4.17 \pm 0.45	3.384	0.001
After treatment	4.14 \pm 0.41*		

Table 2 comparison of the cervical canal length between successful pregnancy of experimental group and control groups(cm, $\bar{x}\pm s$)

	n	12 weeks	20 weeks	28 weeks
Experimental group	27	4.14±0.89	4.33±1.19	4.23±0.78
Control group	30	4.16±0.73	4.47±1.05	4.31±0.99

2.3 Comparison of pregnancy between two groups

Successful pregnancy rate after operation in experimental group is [22 (73.33%)], lower than control group [30 (100.0)]. See table 3 for details.

Table 3 Comparison of pregnancy between two groups(% , $\bar{x}\pm s$)

	n	Successful pregnancy	Infertility
Experimental group	30	22(73.33)*	8(26.67)
Control group	30	30(100.0)	0

Note: Compared with the control group,*P<0.05.

2.4 Comparison of the pregnancy outcome between two groups

The incidence of pregnancy with preterm premature rupture of membranes, umbilical cord around the neck

prematurity and cases of term delivery number between experimental and control groups showed no significant difference between two groups($P>0.05$). See table 4 for details.

Table 4 comparison of the pregnancy outcome between two groups

	n	premature rupture	umbilical cord around neck	Full-term delivery
Experimental group	27	3 (11.11)	2 (7.41)	22 (81.48)
Control group	30	2 (6.67)	2 (6.67)	26 (86.67)

3 Discussion

Cervical intraepithelial neoplasia is a group of precancerous lesions associated with cervical cancer and is an important disease that threatens women's health^[6]. It is common in women aged 25-35 and cervical cancer is common in women over the age of 40. According to statistics^[7], cervical cancer is the malignant tumor second only to breast cancer in the incidence of malignant tumor in female. Early diagnosis and positive treatment can block the course of disease to achieve the goal of cure. Cervical intraepithelial neoplasia includes CIN I, CIN II, CINIII. Among them, CINII, CINIII also known as high-grade squamous intraepithelial lesions (HSIL)^[8].

Cervical dysfunction is an important cause of habitual abortion in the middle of pregnancy. The study showed^[9-10] that after cervical surgery, the cervix length at 3 months after transvaginal B-ultrasonic examination was shortened by about 0.1cm and the cervical canal can be restored to normal length at 6 months after the surgery. Therefore, the regeneration and repair of cervical tissue usually begins within 3-12 months after the conization. The results of this study showed that the length of cervical canal was lower than before treatment in the experimental group ($P < 0.05$). This is consistent with previous reports. Studies have also shown^[11] that the risk of preterm birth is increased by a period of less than 6 months of pregnancy after cervical conization. The results of this study show that in control group, the cervical tube length were respectively (4.16±0. \$number) cm, (4.47±1. \$number) cm, (4.31±0. \$number) cm at 12 weeks, 20 weeks and 28 weeks after pregnancy. In experimental group, the cervical tube length were respectively (4.14±0.89)cm, (4.33±1.19)cm, (4.23±0.78)cm at 12 weeks, 20 weeks and 28 weeks after pregnancy. There was no statistically significance between the difference of two groups ($P > 0.05$). There was no significant difference in the incidence of fetal preterm birth in two groups. Studies have confirmed ^[12-14] that the cervical tube length is the longest in 20-25 weeks of pregnancy, and

it begins to shorten after 32 weeks. Therefore, during this period, the cervical tube length was 3.5 cm or more, and the width of the mucous membrane of cervical tube increased slightly. This result lays the foundation for our prediction of preterm birth. Studies have shown^[15] that cervix is narrow because of the removal of some cervical tissue by the cervical conization, which causes sperm to be blocked and affect the pregnancy. And the surgery removes the glands of secrete mucus, causing inflammation in the part of cervix and affecting the pregnancy. The results showed that the successful pregnancy rate (73.33%) after the operation in the experimental group was lower than that of the control group (100.0), which was consistent with previous reports.

To sum up, the cervical canal length level of patients with high-grade cervical intraepithelial neoplasia was lower after cervical conization, the successful pregnancy rate was low, the pregnancy cervical tube length and the rate of preterm birth had no difference compared with normal pregnant women.

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