

## Original Article

# The Relationship between Gynecological Cancers and the Use of Contraceptive Method

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## ABSTRACT

**Introduction:** The use of contraceptive method is the voluntary prevention of conception through the use of various devices, sexual practices, chemicals, drugs, or surgical procedures. The relationship between oral contraceptives and gynecological cancer has been known for a long time. The aim of this study is to investigate the relationship between gynecological cancers and the use of contraceptive methods.

**Methods:** This is a retrospective study. The information of various gynecological cancer patients who were operated in our hospital was scanned backwards over a five-year period. 41 cervix, 70 endometrial, 58 ovarian cancer cases, which were operated in a five-year period, were included in the study. 61 cases operated as myoma uteri cases were used as control group. The data obtained from the forms were analyzed using the SPSS program. Analysis of Variance and T-Test were used as statistical analysis.

**Results:** When the results of the study are analyzed, it is seen that the most commonly used contraceptive method in ovarian and endometrial cancers is the intra uterine device. Oral contraceptives are the most commonly used method in cervical cancer. In terms of age distribution, there is a statistically significant difference between the control group and all cancer cases. When IUD and condom use in ovarian cancer cases were compared with the control group, no statistical difference was found. Similarly, the use of OCS and IUD in endometrial cancer cases was compared with the control group, no statistical difference was found.

**Conclusion:** Contraceptive methods attract attention as simple and safe tools that can be effective in the prevention of gynecological cancers. The use of these agents and devices in cancer types with familial predisposition may contribute to the prevention of cancer. This is extremely important for public health.

**Key words:** Gynecological Cancers, Contraceptive Method, OCS, IUD

## INTRODUCTION

The use of contraceptive method is the voluntary prevention of conception through the use of various devices, sexual practices, chemicals, drugs, or surgical procedures. Effective contraception eliminates the fear of unwanted pregnancy. Thanks to this control, the freedom to have children when desired is protected. The purpose of using contraceptive method is to perform birth control with minimum cost/side effects and maximum comfort/privacy. Some methods, such as condoms, also provide an advantage in protection from sexually transmitted diseases.<sup>1</sup>

Nowadays, many women and men of reproductive age want to regulate their fertility. A fertile, sexually active woman between the ages of 20 and 44 could potentially give birth approximately 12 times. It is accepted that in order to avoid abortion, some form of contraception has to be applied in 16-20 of 25 reproductive years.<sup>2,3</sup>

Today, there is a conflict between couples to choose between goals such as a quality sexual life and being a family. Mistakes made in these choices result in unwanted pregnancy or abortion. Abortion can be risky in some cases. When it is done under unhygienic conditions, it can cause both reproductive problems and maternal deaths. It has been reported that birth control, when used correctly by women who want to avoid pregnancy, will reduce maternal deaths by 25-35% worldwide.<sup>4</sup>

The relationship between oral contraceptives and gynecological cancer has been known for a long time. This relationship has been investigated in studies with high scientific value such as prospective cohort and case control studies. These studies generally provided evidence that breast and cervical cancer risks are increased, and the risks of endometrial, ovarian and colorectal cancers are reduced in women using oral contraceptives.<sup>5-7</sup>

Naturally occurring estrogen and progesterone stimulate the development and growth of certain cancers, such as breast cancer. Since oral contraceptives contain synthetic versions of these hormones, they can potentially increase the risk of cancer. In addition, oral contraceptives may increase the risk of cervical cancer by changing the susceptibility of cervical cells to infection with high-risk Human Papillomavirus (HPV) types.

Oral contraceptives prevent endometrial cancer development by suppressing endometrial cell proliferation, ovarian cancer development by reducing the number of ovulations throughout the life of women and colorectal cancer development by reducing the levels of bile acids in the blood.<sup>8</sup>

The aim of this study is to investigate the relationship between gynecological cancers and the use of contraceptive methods.

## METHODS

Our research was planned as a retrospective study. The information of various gynecological cancer patients who were operated in our hospital was scanned backwards over a five-year period. 41 cervix, 70 endometrial, 58 ovarian cancer cases, which were operated in a five-year period, were included in the study. 61 cases operated as myoma uteri cases were used as control group. Myoma uteri is the most common benign tumor of the genital organs in women of childbearing age. The files of cancer and myoma uteri cases were scanned retrospectively and information was obtained. The contraceptive method used by the cases and controls was determined from the information obtained. During the scanning of the files, the last protection method used by the cases in the reproductive period was taken as basis.

Methods used by participants are: Oral Contraceptives (OCS), Intrauterine Device (IUD), Condom and Withdrawal. Those who use the withdrawal method and those who do not use contraceptive methods were included in the

study as a single group combined. Contraceptive methods were examined in four different groups.

The participants were informed about the study by the researchers before the start of the study. There was no compulsion to participate in the study. Participation took place on a voluntary basis.

Cancers of all stages were included in the study. Age distribution was also examined as epidemiological data. The data obtained from the forms were analyzed using the SPSS program. Analysis of Variance and T-Test were used as statistical analysis.

## RESULTS

As seen in Table 1, the mean age of the subjects included in the study was 53.2 for cervical cancer, 58.1 for endometrial cancer, 54.9 for ovarian cancer, and 44.3 for myoma uteri cases. In terms of age distribution, there is a statistically significant difference between the control group and all cancer cases.

**Table 1: Descriptive statistics of case and control group**

	Number	Average	Standard Deviation	Standard Error	Min	Max
Cervical	41	53.29	12.92	2.01	32	83
Endometrial	70	58.13	9.42	1.12	41	78
Ovarian	58	54.98	14.28	1.87	16	83
Control	61	44.31	9.03	1.15	26	74
Total	230	52.01	12.57	0.82	14	83

**Table 2: Contraceptive methods used in the case group and control group.**

Contraceptive Methods	Control Group (Myoma Uteri) (%)	Cervical Cancer (%)	Ovarian Cancer (%)	Endometrial Cancer (%)
OCS	17 (27.8)	9 (21.9)	6 (10.4)	8 (11.5)
Condom	13 (21.4)	3 (7.3)	6 (10.4)	5 (7.2)
IUD	10 (16.4)	8 (19.6)	16 (27.5)	24 (34.2)
Withdrawal Unprotected	21 (34.4)	21 (51.2)	30 (51.7)	33 (47.1)

When the results of the study are analyzed, it is seen that the most commonly used contraceptive method in ovarian and endometrial cancers is the IUD. OCS is the most commonly used method in cervical cancer. Similarly, in the control group consisting of myoma uteri cases, it was determined that the most frequently used method was OCS. On the other hand, the least used method in the control group is the IUD. While the condom is one of the most frequently used methods in the control group, it is the least used method in all cancer types.

The number of people in the group that was protected by withdrawal and those who were not protected was statistically significantly higher than those who used contraceptive methods in all cancer types and in the control group ( $p < 0.05$ ). In cases with cervical cancer, no significant difference was found between the use of OCS and the use of IUD. The frequency of condom use in these cases was 7.3%, while it was 21.4% in the control group. The difference is statistically significant ( $p < 0.05$ ). It is also remarkable that condom use is the least preferred method in cases with cervical cancer (Table 2).

When IUD and condom use in ovarian cancer cases were compared with the control group, no statistical difference was found. OCS use was found to be 10.4% in ovarian cancer cases and 27.8% in the control group. The difference is statistically significant ( $p < 0.05$ ). The use of OCS is the least used method together with condoms in ovarian cancer cases (Table 2).

When the use of OCS and IUD in endometrial cancer cases was compared with the control group, no statistical difference was found. Condom use was 7.2% in endometrial cancer cases and 21.4% in the control group, and the difference was statistically significant ( $p < 0.05$ ). Condom use is the least preferred method in cases with endometrial cancer (Table 2).

## DISCUSSION

The potential impact of the method on the risk of developing breast, cervix, endometrial or ovarian cancer is important in evaluating the appropriate contraceptive method. Among the most closely studied risk factors are OCS, IUD

and injectable progestins. The potential effects of these agents on the disease course and treatment, future fertility, and fetal health should be considered prior to administration. Even after discontinuation of use of OCS, it provides protection against endometrial and ovarian cancer for years.<sup>9</sup>

There are many studies examining the relationship between the use of contraceptive methods and gynecological cancers. Persistent infection with sexually transmitted high-risk HPV genotypes is a cause of cervical cancer. Current vaccines do not protect against all HPV genotypes. Condom use has a significant protective effect against sexually transmitted infections. The U.S. Centers for Disease Control and Prevention recognizes that condoms can be useful in preventing HPV infections and related diseases. According to the results obtained from published cohort studies, condom has a statistically significant protective effect in the prevention of HPV infections and cervical neoplasia. With the use of condoms, the risk of becoming infected with HPV is significantly reduced. In some studies, a protective effect against HPV was observed, although it was not statistically significant. In our study, condom use in cases with cervical cancer was significantly lower than in the control group. It was thought that this situation may have arisen from the fact that the subject did not reach a sufficient level of awareness in the society.<sup>10</sup>

The use of OCS, which is considered a risk factor for cervical cancer, was investigated in a comprehensive systematic review. A 10-year literature search was conducted in databases using various search terms. Articles evaluating the relationship between OCS use and cervical cancer with a case-control or cohort study design were reviewed. As a result, data from 19 studies were analyzed. It was found that the risk of adenocarcinoma, squamous cell carcinoma and carcinoma in situ increased significantly with the use of OCS. Among them, adenocarcinoma has a higher risk than others.<sup>11</sup>

The use of OCS has a protective effect on ovarian cancer. OCS reduces the risk of ovarian cancer. The public health implications of this reduction depend on how long the protection lasts after use has ended. A very comprehensive study was conducted to evaluate the public health effects of OCS. 23,257 cases with ovarian cancer and 87,303 controls without ovarian cancer were included in the study. According to the results of the study, the longer the women use OCS, the greater the reduction in the risk of ovarian cancer. This reduction in risk continues for more than 30 years after OCS use has ended. In summary, the conclusion drawn from this study is that the use of OCS provides long-term protection against ovarian cancer. The findings reveal that OCS prevents approximately 200,000 ovarian cancers and 100,000 deaths from the disease. It shows that the number of cancers prevented in the next few decades will rise to at least 30,000 per year. In our study, it was determined that the use of OCS in patients with ovarian cancer was significantly lower than in the control group. From this point of view, it has been evaluated that OCS can be recommended in patients with a high family risk of ovarian cancer.<sup>12</sup>

It is reported that OCS provides protection against endometrial cancer for 30 years or more. The use of the levonorgestrel intrauterine system and inert IUD also reduces the risk of endometrial cancer. One study used data from a population-based case-control study to assess the risk of

endometrial cancer among women using IUDs. According to this, it has been determined that the risk of developing endometrial cancer in women who have used IUD before is 40% lower than those who do not use it. Research results also show that the reduction in the risk of endometrial cancer is not dependent on the duration of IUD use. In our study, no relationship was found between IUD use and endometrial cancer. This may be due to the age difference between the control group and case groups of our study. In addition, the number of participants in our study being limited compared to studies that found any relationship between IUD use and endometrial cancer was also considered to be effective.<sup>13,14</sup>

## CONCLUSION

As a result, contraceptive methods attract attention as simple and safe tools that can be effective in the prevention of gynecological cancers. The protective effects of OCS against endometrial and ovarian cancer, and of IUD against endometrial cancer are important. The use of these agents and devices in cancer types with familial predisposition may contribute to the prevention of cancer. This is extremely important for public health.

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