TRENDS IN THE PREVALENCE AND ETIOLOGY OF GYNECOLOGICAL CANCERS AT THE GLOBAL AND NATIONAL LEVEL

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Abstract

Cancer is an important public health problem. In order to protect public health, knowing the epidemiology of cancer and cancer statistics is important for health protection and development studies. In 2018, 18.1 million people were diagnosed with cancer and 9.6 people died of cancer. When the types of cancer related to reproductive organs are examined: In 2020, the highest prevalence of vulva cancer in the world was seen in Europe with 38.5%, while vagina, cervix, endometrium and ovarian cancers were 52.1%, 59.5%, 35.9% and 35.9%, respectively. It was reported to be highest in Asia with 5.9%. When the trends in gynecological cancer etiology are examined, these trends are obesity, infection, drugs, Human Papilloma Virus (HPV), Human Immunodeficiency Virus (HIV), diet, physical activity, microbiome, air pollution, DNA sequences, radiation, inflammation, immune system, smoking-alcohol designated for use. Although gynecological cancers can be treated with medication, surgery is usually required. There are some protocols for surgical applications, and the Eras protocol is among these protocols to reduce physiological stress and provide effective care. Effective and quality management of cancer can be achieved through multidisciplinary team work for gynecological cancer treatments and care provided with current evidence-based data. For this purpose, the review was conducted to determine the prevalence of gynecological cancers and trends in their etiology. As a result, gynecological cancers are important causes of morbidity and mortality and it has been determined that many factors are effective in their etiology. For this reason, health protection and promotion studies should be planned by considering the factors in etiology and quality health services should be provided to individuals.

Key Words: Gynecological Cancer, Prevalence, Etiology, Risk Factors, Eras Protocol

1. INTRODCUTION

Cancer is among the important public health problems in the world and in our country (World Health Organization 2020b) . For this reason, knowing cancer statistics is of great importance in terms of taking necessary precautions. In 2018, 18.1 million new cases diagnosed with cancer were detected and 9.6 million people died from cancer. When cancer is evaluated by gender, 1 in every 10 women and 1 in every 8 men are diagnosed with cancer (TC Ministry of Health 2018) .

In the report published by the World Health Organization in 2020, the top 3 cancers with the highest incidence are breast, lung and colon cancer; The top 3 cancers with the highest prevalence were determined to be lung, colon and liver cancer (World Health Organization 2020a) . The top three cancers with the highest incidence among men are lung, prostate and colon cancer (Global Cancer Observatory 2020b) ; The top 3 cancers among women are reported to be breast, colon and lung cancer, respectively (Global Cancer Observatory 2020a) . Gynecological cancer types negatively affect women's quality of life. Therefore, the incidence and etiology of gynecological cancers are important for diagnosis, treatment and quality care.

There are also protocols such as ERAS protocols that can be used for the course, diagnosis, treatment and subsequent rehabilitation of the disease. These protocols will ensure that the quality of health care offered to the individual is provided in the best possible way and that disease-related situations are intervened (Schneider et al. 2020) . This review was conducted to explain the trends in the prevalence and etiology of gynecological cancers and to examine the Eras protocol.

2. VULVAR CANCER

It is less common than uterus, ovarian and cervical cancer (Siegel et al. 2023). There are some histological types of vulvar cancer: sarcoma, Bartholin adenocarcinoma, Paget's disease, basal carcinomas and squamous carcinomas, and they are the most common squamous carcinomas (Schuurman et al. 2013) . Vulvar cancer most commonly affects the labia majora, and less frequently affects the labia minora, clitoris and glands (Board 2002). In the first stage, there are lesions occurring in the vulva, and although this stage is generally asymptomatic, bleeding and itching complaints may sometimes occur. Other symptoms include dysuria (painful urination), edema in the groin and vulva, enlargement of lymph nodes and dyschezia (Zacur et al. 1980) .

The age at diagnosis of vulvar cancer in the United States (USA) is 68 and the risk of occurrence in women is 0.3. Cancer is diagnosed at an early stage, and while the average age of death after cancer diagnosis in the USA is 78; The five-year survival rate was determined to be 72.1% (https://seer.cancer.gov/statfacts/html/vulva.html).

According to World Health Organization (WHO) 2020 Globacan data, vulvar cancer prevalence in the last 5 years is 52 384 (38.5%) in Europe, 34 567 (25.4%) in Asia, 24 487 (18%) in North America, It was determined that there were 11 769 (8.7%) in Africa, 10 812 (8%) in Latin America and 1 873 in Oceania, a total of 135 892 (International Agency for Research on Cancer IARC 2020e) . Rates are high in Europe due to the use of hormonal contraceptive methods and less use of barrier methods.

When the rates in our country are examined, according to the Türkiye Cancer Statistics report; While the number of cases in 2018 was 245 per 100 thousand people, it was announced that the estimated number of cases in 2021 will be 254 per 100 thousand people and the rough rate is 0.6 (TC Ministry of Health 2018) .

2.1. Protection

Vulva Self-Examination (KKVM) is one of the first practices that should be performed to protect vulvar health. Thanks to the application, external reproductive organs are examined and early diagnosis can be made for diseases of the vulva and cancer occurring in the vulva. However, the number of people performing this practice is low, so the necessary training should be provided and the awareness level of people should be increased (Acar et al. 2023) .

A history of cervical cancer has been determined as a risk factor for vulvar cancer, so Pap smear and HPV DNA tests, which are important for early diagnosis, should be done and HPV vaccines should also be taken to protect against cervical cancer. Monogamy, use of barrier contraceptives during sexual intercourse, and genital hygiene should be taken into consideration. As with other types of cancer, appropriate eating habits should be acquired and harmful habits such as alcohol and cigarettes should be avoided (Taşkın 2021) .

3. VAGINA CANCER

One in 100 women is diagnosed with vaginal cancer. It is less common than uterus, cervix and ovarian cancer (Siegel et al. 2023) . They are the most common squamous carcinomas (Shah et al. 2009; Gadducci et al. 2015) . Other types are adenocarcinoma, melanoma, clear cell adenocarcinoma, vaginal lymphoma and sarcoma. The approximate diagnosis of these carcinomas is made at the age of 60 (Daling et al. 2002; Kulkarni et al. 2022). 20% of women may be asymptomatic. The most common symptom is vaginal bleeding. Bleeding occurs after intercourse or after menopause. Another symptom is rectal pain and mass. Changing the appearance of vaginal discharge and having a bad smell are among the symptoms. In addition, urinary problems such as dysuria and frequent urination; Gastrointestinal problems such as melena and constipation may also occur (Pride et al. 1979; Gallup et al. 1987) .

According to WHO 2020 Globacan data When the prevalence of vaginal cancer in the last 5 years is examined, 23 254 (52.1%) in Asia, 3 860 (8.7%) in Africa, 8 480 (19%) in Europe, 3 673 (8.2%) in Latin America, North America 3 860 (11.1%), Oceania 399 and a total of 44 613 people were determined to have vaginal cancer (International Agency for Research on Cancer IARC 2020d) . In the United States, vaginal cancer is more common than vulvar cancer (Kaltenecker et al. 2023; Siegel et al. 2023) . In Asia, rates are high due to reasons such as not using barrier methods and sex work.

In our country, according to Turkey Cancer Statistics, it has been announced that the number of cases will be 82 per 100 thousand people in 2021, and the rough rate will be 0.2 per 100 thousand people (TC Ministry of Health 2018) .

3.1. Protection

First of all, we should know the symptoms of cancer and help with early diagnosis. The most important symptom of vaginal cancer is vaginal bleeding. When these symptoms such as bleeding, rectal pain, change in color or odor of vaginal discharge occur, the individual should consult a doctor. Another protection is the determination of risk factors and risk groups. At this stage, although HPV is a risk factor for vaginal cancer, HPV vaccines are available and individuals should get vaccinated if the vaccine is suitable. Barrier methods should be used as a contraceptive method for sexual intercourse, and multiple partners and sexual intercourse at an early age should be avoided (Taşkın 2021) .

4. CERVICAL CANCER

Cervical cancer is the fourth most common type of cancer in women. Those seen in the early stages are asymptomatic. Cancer can be detected incidentally when visible lesions are detected during a pelvic examination. Symptoms include irregular and painful vaginal bleeding or bleeding after sexual intercourse. Other symptoms may include foul-smelling vaginal discharge, pain in the pelvis, and pain in the lower back if there is spread (Taşkın 2021). Estimated 604 127 new cases worldwide in 2020, in terms of both incidence and mortality. It was determined that there were 341 831 deaths. When the prevalences of the last 5 years are examined, 889 766 (59.5%) in Asia 223 557 (15%) in Europe 172 721 (11.6%) Latin America 155 171 (10.4%) North America 47 675 (3%) ,2) 6 321 people in Oceania and a total of 1 495 211 people were determined to have cancer (International Agency for Research on Cancer IARC 2020a) It is the 3rd most common type of cancer in the United States (US) (Siegel et al. 2023). The reason why the rates are high in Asia is the high rate of sex work.

In our country, the incidence of cervical cancer, the main cause of which is HPV, is 4 per 100 thousand. In one year, 2 125 people were diagnosed with cervical cancer. 54.5% of cervical cancer is diagnosed in the localized stage (TC Ministry of Health 2018)

4.1. Protection

If we examine it in 3 stages: primary, secondary and tertiary (Kanbur and Çapık 2011) ;

- ✓ We can be protected from cervical cancer by primary protection, avoiding carcinogens, vaccination methods and health education.

Vaccination to protect against cervical cancer (Ufuk et al. 2017) :

The vaccine called Gardasil was launched in Turkey in 2006 at the same time as the rest of the world. This 3-dose vaccine against viruses protects against HPV types 6 and 11, which are responsible for 90% of genital warts, and HPV 16 and 18, which are responsible for 70% of cervical cancer. HPV-related cervix, vagina, vulva and anal cancers for women between the ages of 9-26; diseases such as genital warts, cervix intraepithelial neoplasm (CIN), cervix adenocarcinoma (AIS), vulva intraepithelial neoplasm (VIN), vaginal intraepithelial neoplasm (VaIN) and anal intraepithelial neoplasm (AIN), as well as HPV-induced anal cancer in men aged 9-26. It is also used for protection against cancer and genital warts. It has no protection against previous HPV infection and is not used for lesion treatment. The vaccine is given at 0, 2 and 6 months. The vaccine should especially be administered to people who are not sexually active.

Cervarix vaccine: this vaccine was developed to protect against cervical cancer, cervix intraepithelial neoplasm stage 2 (CIN2) and beyond, cervix adenocarcinoma and cervix intraepithelial neoplasm stage 1 (CIN1) cases caused by HPV 16 and HPV 18, and is intended for children between the ages of 9-25. It is approved for use in women by the Food and Drug Administration (FDA). CIN2 and CIN3 are indicators of pre-cervical cancer and the Cervarix vaccine is used for these factors. Likewise, it has no protection for people infected with HPV. Vaccines are administered at 0, 1 and 6 months

Another HPV vaccine approved in 2014 is Gardasil 9. In addition to the quadruple vaccine (HPV 6-11-16-18), it also provides protection against HPV types

31, 33, 45, 52 and 58. While protection is 70% in the quadruple vaccine, 90% protection can be achieved with this vaccine . The age of application for women is 9-26, and for men it is 9-15 for protection against HPV-induced anal cancer, genital warts and anal intraepithelial neoplasm 1-2-3. It is also used in some cases, especially in men between the ages of 9-26. It is not applied in cases of sensitivity to the vaccine content or pregnancy.

In our country, the Gardasil vaccine was licensed and put on the market in 2007, and the Cervarix vaccine was released in 2008. A license was obtained for Gardasil 9 in 2019, but it was not put on sale. Since 2007, the cervarix and gardasil quadruple vaccine has been available in pharmacies, but the Cervarix vaccine is no longer used after the manufacturer withdrew it from the market. Gardasil quadruple vaccine is currently used in our country (Akalın 2022) .

- ✓ It is the stage of early diagnosis with secondary prevention and non-invasive treatment of the resulting lesions. Here, the identification of asymptomatic people is determined by identifying and screening at-risk groups.

Screening program for early diagnosis

Screening programs include taking smear samples every 5 years from women between the ages of 30-65 and applying HPV-DNA testing. Pap smear test is up to 90% accurate.

- ✓ Tertiary protection is a form of protection performed in the period after clinical findings. Treatment interventions are applied with appropriate methods to treat the disease and rehabilitation is provided by reducing disabilities.

To summarize what needs to be done to be protected from cervical cancer in general: It is necessary to be protected from sexually transmitted infections and to use barrier contraceptive methods for this. Sexual activity should not be started at an early age. Monogamy should be preferred in sexuality. Alcohol and smoking should not be used. Abnormal bleeding, discharge, and bleeding after sexual intercourse should be monitored and not neglected. Sexually active individuals should follow their check-ups for pap smear tests. Individuals who are sexually active and in the risk group should undergo regular check-ups. It is necessary to use the vaccination program to protect against cervical cancer.

5. ENDOMETRIUM CANCER

Endometrial hyperplasias are precancerous lesions. Increased estrogen levels result in hyperplasia of the endometrium. Increased estrogen levels also increase oma rates by stimulating proliferation. Histologically, there are two types and they are classified as Type 1 and Type 2. Type 1 tumors, which constitute 75% of all cases, are seen at an early age and have a good prognosis, are low-grade, estrogen-dependent; Type 2 tumors, which constitute 25% of all cases, have an aggressive course, occur at older ages, and have a poor prognosis. They are high grade and independent of estrogen (Taşkın 2021). The most common symptom is irregular bleeding. Premenopausal women should be carefully evaluated for this symptom. Also, sudden onset and heavy menstrual bleeding in premenopausal women may be a sign of endometrial cancer. 5-10% of abnormal bleeding in postmenopausal women carries the risk of endometrial cancer. In older ages, bloody serous discharge may also suggest endometrial cancer. In women who ignore bleeding, the disease is diagnosed at an advanced stage. Uterine enlargement, hypogastric and pelvic pain, and abdominal swelling occur due to metastasis in advanced stage cancer (Taşkın 2021).

According to WHO 2020 Globacan data, when the prevalence rates of endometrial cancer in the last 5 years are examined, it is 508 022 (35.9%) in Asia, 482 952 (34.1%) in Europe, 267 491 (18.9%) in North America, and Latin America. It was determined as 105 553 (7.5%), 34 895 (2.5%) in Africa, 16 300 in Oceania and 1 415 213 in total (International Agency for Research on Cancer IARC 2020b) . Due to decreased fertility in Asia, estrogen exposure of the endometrium is increasing and the rates of endometrial cancer are increasing in Asia.

in our country , while 5 425 people per 100 thousand people were diagnosed with cancer in 2018, it was announced that 5 620 people will be diagnosed with cancer in 2021 and the rough rate is 13.3 (TC Ministry of Health 2018)

5.1. Protection

To be protected from endometrial cancer: first, risk factors should be known and risk groups should be determined. Precautions should be taken against risks. Initially, high levels of estrogen exposure should be avoided. If there is cancer in the family, a gene screening should be done. If tamoxifen use is recommended, frequent examinations are recommended. Eating habits and sedentary lifestyles that may cause obesity should be abandoned. Since the most important symptom of endometrial cancer is vaginal bleeding, the individual should not neglect the situation when irregular bleeding occurs. A Pap smear test rarely detects endometrial cancer. There is no specific endometrial screening for women. Instead, women should be taught about endometrial cancer risks and symptoms. In case of any unexpected bleeding, one should contact healthcare services. One should use contraceptive methods to protect against sexually transmitted diseases (Koç 2023) .

6. OVARIAN CANCER

Ovarian cancer is one of the two cancers with the highest mortality rate among gynecological cancers. Ovarian cancer occurs in one in every 70 women. It is known that 1 in every 4 women is diagnosed with ovarian cancer at an advanced stage. Ovarian cancer is a rapidly progressing type of cancer, and the stages at which 58.8% of cases are diagnosed are determined as distant stages (TC Ministry of Health 2018). Patients may experience early symptoms such as abdominal bloating, fatigue, indigestion, increased abdominal circumference, nausea, inability to eat, diarrhea, constipation, pelvic pain and urinary urgency. Bleeding may not usually occur. Symptoms such as abdominal ascites, vomiting, back pain, palpable mass, and pleural effusion are considered late symptoms (Clayton et al. 2005; Hamilton et al. 2009; Hippisley-Cox and Coupland 2011).

According to WHO Globacan data, it was determined that there were 313 959 new cases and 207 252 people died of cancer in 2020. When the prevalence of the last 5 years was examined, this number was determined as 823 315. According to the prevalence data of the last 5 years, 435 574 (5.9%) in Asia, 190 105 (23.1%) in Europe, 80 532 (9.8%) in North America **Latin America 62 165 (7%) 6) It was determined as 48 940 in Africa (5.9%) and 5 999 in Oceania (International Agency for Research on Cancer IARC 2020c) .

In our country, according to Turkish cancer statistics data, it is estimated that 3 187 people per 100 thousand people are diagnosed with cancer and this number will be 3 296 in 2021, and the rough rate is announced as 7.8 (TC Ministry of Health 2018)

6.1. Protection

The fact that the ovary is located deep in the pelvis makes early diagnosis of ovarian cancer difficult. In addition, early diagnosis is extremely difficult due to the lack of obvious early symptoms in ovarian tumors. It may not be discovered until he grows up. Early diagnosis can be made through pelvic examination, serum tumor markers and transvaginal ultrasound, which are not special or sensitive applications/tests for screening the general population. Risky groups must have gynecological check-ups every year. Palpation of the ovary is a useful method in pelvic examination. The size of the ovaries should be examined and checked for abnormalities. Cancer genes should be examined in individuals and masses should be detected with ultrasound (Taşkın 2021) . In order to be protected from ovarian cancer, if there is a family history, genetic tests should be performed, smoking should be avoided, and physical activity and nutritional habits should be paid attention to prevent obesity (Jordan et al. 2006; Olsen et al. 2007) . If there are factors that increase the risk, such as Lync syndrome and polycystic ovary, individuals should go for check-ups at regular intervals (Chittenden et al. 2009; Song et al. 2015).

7. TRENDS IN THE ETIOLOGY OF GYNECOLOGICAL CANCERS

According to the cancer report published by WHO in 2020, some trends have emerged in cancer etiology (World Health Organization 2020b) ;

Obesity

Although it is a risk factor for many cancers, it is also a risk factor for gynecological cancers (endometrium, ovary). It has been determined that the relationship between obesity and cancer is twice as high in highly developed countries compared to medium-developed countries (Arnold et al. 2015; Lauby-Secretan et al. 2016).

Infections

15% of new cases are attributed to infections. While HPV poses a greater risk for cancer in low-developed countries; Helicobacter pylori infection has a significant impact on the cancer burden in countries at high and very high levels of development (Plummer et al. 2016).

HPV types 16-18-31 and 45 are thought to cause cervical cancer. While decreasing cervical cancer rates are associated with screenings, increasing cervical cancer rates are thought to be related to changes in sexual behavior habits and the increase in HPV (Bray et al. 2018). HPV, which has 13 types and is transmitted sexually, is classified as carcinogenic. Of all 570 000 cases of cervical cancer; It is responsible for 120,000 other cases of anogenital and oropharyngeal cancer. It has been determined that the most affected continent in the world is Sub-Saharan Africa and 60% of the cases are caused by HPV. In every region of the world, the two subtypes HPV16 and HPV18 are responsible for approximately 70 cancers. Percentage of cervical cancer cases. HPVs are responsible for more than half of infection-related cancers in women worldwide and approximately half of all women (de Martel et al. 2020). Although HIV is not a direct cause of carcinogenicity, it causes suppression of the immune system and paves the way for the development of cancer caused by other infections. Additionally, HIV is associated with endometrial cancer (International Agency for Research on Cancer 2012).

It has been determined that infection-related cancers are high in both genders in low- and lower-middle-income countries, and the prevalence of risk factors such as limited screening, HPV, sexual intercourse at an early age, HIV and co-infection are high (World Health Organization 2020b) .

Medicines

When drug use for gynecological cancers is evaluated, combined estrogen-progesterone oral contraceptive use is used for cervix and endometrium cancer; endometrium in estrogen hormone use; endometrium, ovary in combined estrogen progesterone hormone use; It has been explained that the use of fertility drugs (gonatropin, gonatropin regulatory agonist-antagonists, etc.) may pose .

Endometrial tissue is hypersensitive to hormones, and it is thought that endometrial cancer occurs as a result of estrogen stimulation that is not met by progestins. The most important risk factor after menopause is obesity. Tamoxifen use also increases the risk of endometrial cancer. Unlike breast cancer, where particularly high risks are associated with the use of estrogen plus progestin, menopausal hormone therapy (combination therapy) has been shown to be associated with endometrial cancer (Chlebowski et al. 2016) . The lowest risks are seen in thin women (those who do not use hormones or use continuous estrogen plus progestin therapy); The highest risks are seen in obese women who do not use hormones (who are at higher risk than obese users who use continuous estrogen plus progestin) (Trabert et al. 2013) . The effects of combination therapy may be affected by how the drugs are prescribed depending on how they will be used, and studies on this issue have just taken their place on the agenda.

Nulliparity, like infertility, is a well-known risk factor for ovarian cancer. There are studies showing that fertility drugs are a risk factor for endometrial cancer (Pearce et al. 2012) . Long-term use of oral contraceptives has been associated with reductions in risk (Beral et al. 2015) . Recent attention has been on the possible role of hormonal and immunological factors (including inflammatory) and their interaction. Conflicting results have emerged regarding the respective roles of estrogens, androgens, follicle-stimulating hormone, sex hormone-binding globulin, and insulin-like growth factor (Brown and Hankinson 2015) . Further research seems necessary in terms of specific Ovarian cancer subtypes, especially serous and non-serous tumors, where there is increasing evidence of etiological heterogeneity (Wentzensen et al. 2016).

The risk of cervical cancer has been found to increase due to current or long-term use of oral contraceptives (International Collaboration of Epidemiological Studies of Cervical Cancer 2006) . The relationship of menopausal hormonal therapy to cervical cancer is less clear. There is some evidence that endogenous sex steroids, particularly testosterone and estradiol, may play an etiological role (Rinaldi et al. 2011) but it remains unclear how hormonal factors may interact with HPV. Considering suggestions that adenocarcinomas may be more affected by hormonal risk factors such as obesity and exogenous hormone use, it has been stated that studies are needed to examine the relationships between squamous cell cancers and adenocarcinomas separately.

Diet and physical activity

The effect of nutrition on body fatness constitutes a risk factor for cancer. It is especially important to avoid sugar-sweetened beverages and replace refined carbohydrate drinks with whole grain alternatives. Consuming plenty of fruit and

vegetables has less impact on cancer risk than previously thought. It is recommended to reduce the consumption of processed meat and foods. It shows that physically inactive behavior is linked to an increased risk of breast, colon, endometrial and lung cancer (Fong et al. 2012; Schmid and Leitzmann 2014; Whiteman and Wilson 2016) .

Microbiome

There are various organisms in the human body such as fungi, bacteria and viruses. While these species are called microbiota in a certain environment, they are considered microbiome when evaluated with both their environment and genome. Vaginal microbiome studies, which are thought to be associated with gynecological cancers, are still in their early stages. HPV strains are known to increase cervical cancer (de Freitas et al. 2012; Arbyn et al. 2014)

Microbiomes associated with various types of cancer are, respectively, L. crispatus-rich microbiomes with healthy patients; Lactobacillus iners was only associated with cervical cancer, and HPV positive patients were associated with a higher risk of Cervical Intraepithelial Neoplasia (CIN). (Champer et al. 2018) . Another study reported that L. iners was associated with a reduced risk of squamous intraepithelial lesions and cervical cancer. Other species of Lactobacillus have also been associated with CIN (Piyathilake et al. 2016) . A diverse array of less abundant bacterial species have been associated with CIN, including Atopobium vaginae, G. Vaginalis, Fusobacterium, and others (Audirac-Chalifour et al. 2016; Piyathilake et al. 2016; Seo et al. 2016) . Cytokine profiling has been determined to reveal higher local interleukin levels and transforming growth factor (TGF)-β1 mRNAs in Fusobacterium-dominated microbiomes (Mitra et al. 2015) . Similarly, patients with squamous intraepithelial lesions tend to have Sneathia-enriched microbiomes (Audirac-Chalifour et al. 2016) . Diet can potentially affect the microbiome; for example, women who follow a semi-Western diet rather than a diet rich in fish and vegetables have been found to have higher rates of CIN (Seo et al. 2016).

The microbiome may also influence cancer risk through different mechanisms, such as preventing chronic infection associated with cervical neoplasia. It has been reported that endometrial cancer, which is characterized by estrogen increases in its pathology, is also associated with pelvic inflammatory disease (PID) (Ghosh et al. 2016) . PID has been associated with conditions such as the vaginal microbiome and bacterial vaginosis (Yang et al. 2015) . Therefore, microbiome disorders may be a risk factor for endometrial cancer. It has been explained that the ovary and fallopian tubes have different microbiomes, and the upper genital tract microbiome compositions of individuals with ovarian cancer may also differ (Brewster et al. 2016) . In a study, it was determined that there is a relationship between endometrial cancer and microbiomes, and that this relationship is especially related to Porphyromonas and A. Vaginae species (Walther-António et al. 2016) .

Other factors

It is explained in the report that air pollution, microbiota, DNA sequences, radiation, inflammation, immunity, smoking and alcohol use are risk factors for gynecological cancers (World Health Organization 2020b) .

8. NURSING CARE WITHIN THE SCOPE OF ERAS PROTOCOL IN GYNECOLOGICAL CANCERS

The protocol aims to prevent hospitalizations, reduce hospitalizations, relieve pain in the postoperative period, and initiate gastrointestinal functions. The protocol

ensures accelerating recovery by reducing physiological stress after the surgical procedure and providing the most effective care delivery when the care process begins. Interprofessional cooperation is required for the best implementation of the protocol.

It includes the procedures of investigating diseases and intervening appropriately before preoperatively in order to ensure physical and mental health. Smoking and alcohol should be stopped 4 weeks before surgery. It is important for the patient to exercise as it will reduce the risk of complications in the postoperative period. In order to reduce the need for transfusion in patients with iron deficiency, iron devices should be given 28 days in advance, and anemia should be intervened 14 days before the preoperative period. It is recommended that the individual not be obese and lose preoperative weight, as it will negatively affect the perioperative and postoperative periods. Hypoalbumin level is related to nutrition, and its low level indicates that nutrition is poor. Since this situation will delay healing, albumin level should be kept within normal ranges. Nutritional status is an important factor in affecting clinical results after surgery. In immunonutrition, trace elements such as arginine, glutamine, amino acids, omega-3, beta-carotene, nucleotides, vitamins A, E, C, zinc and selenium are included in the diet for the preoperative and postoperative periods. elements are included. Within the scope of ERAS, it is recommended that immunonutrition should continue for 7 days preoperatively and 5 days postoperatively. Preoperative education and counseling: It includes the process of informing and training the patient about the process from the preoperative period to the discharge period. In this process, lack of information is eliminated and fear and concerns are reduced. The ERAS protocol also recommends informing the patient, providing training and providing psychological support, starting from the very beginning until the final procedures. ERAS protocol is evaluated as 4 processes: preoperative, intraoperative and postoperative (Bekmezci and Meram 2022).

Preoperative components

The use of antibiotics in the preoperative period reduces the risk of infection. In bowel preparation, the Eras protocol does not recommend intervention before an invasive gynecological surgical procedure. While anxiolytics may be recommended in cases of extreme stress, they are not recommended in normal situations. Heparin is preferred in surgeries lasting longer than half an hour due to the risk of pulmonary embolism and vein thrombosis. The ERAS protocol recommends that Heparin application be used together with mechanical methods (pneumatic compression stockings or devices). In the preoperative period, the patient is 6 hours before anesthesia; It is necessary to stop the liquid diet 2 hours before. In long-term fasting, hospital stay is prolonged, insulin resistance develops, hyperglycemia and infection in the surgical area may occur. For this reason, it is necessary to pay attention to the patient's fasting periods before surgery. Postoperative nausea is a condition that may be encountered after surgery. This situation should be prevented by ensuring the patient's hydration and using antiemetics. The surgical area should be cleaned with antiseptic/chlorhexidine, and the hair should be shortened so as not to damage the area.

Intraoperative components

The anesthesia process is adjusted according to the patient's characteristics and the surgery. Anesthesia management is important to avoid patient complications. With fluid therapy, the body's homeostasis is maintained. It is determined by the patient and the procedure. It has been emphasized that it is important to keep the patient's body temperature at 36 and above in the perioperative period, and that factors such as

operating room temperature and infusion temperature should be taken into consideration. It is aimed to minimize procedures such as catheterization and nasogastric tube, which are as invasive as possible.

Postoperative components

It is recommended that feeding be early in the postoperative period and not be delayed to prevent infection. In the ERAS protocol, it is recommended to maintain appropriate nutritional status in the postoperative period. The urinary catheter must be removed within the first 24 hours to prevent both urinary tract infection and urinary retention. It has been explained that fluid overload should be avoided in the postoperative period and fluid infusion should be stopped in the early period. Multimodal analgesia, which is based on the use of two or more analgesic drugs with different mechanisms of action and different targets, is more effective in pain management in the postoperative period and positively affects recovery. Patients were recommended to be mobilized 24 hours after the postoperative period. It has been stated that laxatives can be used if necessary to prevent ileus and that coffee gum is recommended for the return of intestinal functions. Early discharge, which is one of the goals and objectives of the ERAS protocol, includes the readiness of patients, discharge and post-discharge evaluation processes. In this process, the patient's information needs should be met and training and consultancy regarding the process should be provided.

9. CONCLUSION

Considering etiological factors and prevalence studies in gynecological cancers, necessary protective measures (screening, vaccination, etc.) should be taken for cancer types with high morbidity and mortality rates, and the individual's quality of life should be increased with health-improving practices.

A multidisciplinary approach should be adopted as the treatment of gynecological cancers and the current evidence-based agenda should be followed. In this way, sufficient information can be obtained to manage gynecological cancers and it can be made possible to provide effective care to the individual in line with the need (Okumuş et al. 2015) . In addition, hospitalizations can be prevented and complications can be reduced with treatment evidence-based protocols such as Eras protocols. These protocols will help identify new alternative methods and reveal which evidence-based research should be done.

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ORİJİNALLİK RAPORU

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BENZERLİK ENDEKSİ	İNTERNET KAYNAKLARI	YAYINLAR	ÖĞRENCİ ÖDEVLERİ

BİRİNCİL KAYNAKLAR

1	publications.iarc.fr İnternet Kaynağı	%1
2	M Champer, AM Wong, J Champer, IL Brito, PW Messer, JY Hou, JD Wright. "The role of the vaginal microbiome in gynaecological cancer", BJOG: An International Journal of Obstetrics & Gynaecology, 2018 Yayın	%1
3	www.ncbi.nlm.nih.gov İnternet Kaynağı	%1
4	www.researchgate.net İnternet Kaynağı	<%1
5	www.cmaj.ca İnternet Kaynağı	<%1
6	coemed.org İnternet Kaynağı	<%1
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