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One-year results of the national breast and cervical cancer screening program: Giresun province in the black sea region

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Ethics Committee Approval
The study was approved by the Scientific Research Ethics Committee of Ordu University, decision date: 02/9/2022, decision no: 2022/201. All procedures in this study involving human participants were performed in accordance with the 1964 Helsinki Declaration and its later amendments.

Conflict of Interest
No conflict of interest was declared by the authors.

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Abstract

Background/Aim: Increasing the survival rate of patients with breast and cervical cancers is possible by early diagnosis through screening individuals for cancer in the asymptomatic period. Especially during the COVID-19 pandemic period, the possibility of early diagnosis in breast and cervical cancers has decreased due to the decrease in cancer screening applications. The aim of cancer screening is to increase the survival of patients by detecting precancerous lesions early. The purpose of our study is to evaluate the application and results of breast and cervical cancer screening in the Black Sea region's Giresun province.

Methods: This is a cross-sectional and descriptive study. The results of patients who were admitted to the Giresun Early Diagnosis Cancer Screening and Education Center between July 1, 2021, and June 28, 2022, were examined. The mammography report results of women aged 40–69 years who applied to the cancer screening center for breast cancer screening, and the HPV and Pap smear results of the patients aged 30–65 years who applied for cervical cancer screening, were evaluated retrospectively through the public health management system. Mammography results were evaluated with BIRADS (Breast Imaging Reporting and Dated System) scoring. The type of HPV and the cytology results from cervical swab samples were analyzed for cervical cancer screening.

Results: A total of 3567 people underwent mammography. Per the mammography results, the percentage of those with BIRADS 0 was 7.7% (n=278), the percentage of those with BIRADS 1–2 was 91% (n=3256), the percentage of those with BIRADS 4 was 0.7% (n=25), and the percentage of those with BIRADS 5 was 0.14% (n=5). HPV-DNA and cervical cytology examinations were performed for cervical cancer screening in 2326 patients. As a result of cervical cancer screening, HPV positivity was found in 6.44% (n=150) patients, and 14 different HPV types were found in the positive samples. When HPV types were examined, the two most common types were HPV type 16 (13.6%) and type 56 (11.9%). When the HPV types were examined in the positive samples, the two most common types were HPV type 16 (13.6%) and type 56 (11.9%). HPV type 18 was the least detected HPV type in patients (3.7%). When the Pap smear screening results of the 150 cases with positive screening results were examined, 3.33% were ASC-US (atypical squamous cells of undetermined significance), 22% were reported as infection, and 62.6% were normal.

Conclusion: The role of primary care physicians directing patients registered in their coverage area to cancer screening programs is especially effective in raising society's awareness and education on the issue. As a result, it is important that primary care physicians and related specialist physicians, together with cancer early detection and screening centers, adopt a supportive stance towards these programs in order for them to be implemented effectively.

Keywords: breast cancer screening, women's health, human papilloma virus, cervical cancer screening

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Introduction

Breast cancer is the most common type of cancer detected among women worldwide. Approximately one in four cancer diagnoses is breast cancer, and breast cancer ranks first among the causes of cancer-related death for women in many countries [1]. In Turkey, amongst all causes of death, cancer-related causes rank second [2]. Early diagnostic methods are important and effective tools for addressing complex disease processes such as cancer [3]. With early diagnosis, survival increases significantly. In developed countries, the 5-year survival rate for breast cancer has risen to 90% by detecting and treating breast cancer at an early stage [4].

Although it varies according to sociocultural and economic factors, cervical cancer is the fourth most common type of cancer observed in women [5,6]. In Turkey, it ranks ninth among cancer types in women according to 2017 data [7]. Human papillomavirus (HPV) is sexually transmitted, and more than 200 subtypes have been described [6]. HPV type 16 and HPV 18 are involved in the etiology of the majority of cervical cancers [8]. Cervical cancers are a type of cancer that can be prevented by, first, preventing HPV transmission, then by detecting the infection before it reaches the precancerous stage [9]. The World Health Organization (WHO) recommends performing cancer screening with community-based, accepted, and easy-to-apply methods for the early detection of breast and cervical cancer [10]. It has been accepted that 70% of the population should be screened in order for the cancer screening program to be deemed successful [11]. In our country, at community-based cancer early detection screening and education centers, women aged 40–69 years receive mammography every 2 years for breast cancer screening, and women aged 30–65 years receive HPV DNA and Pap smear tests every 5 years for cervical cancer screening. Opportunistic screenings are performed during outpatient admissions to secondary and tertiary institutions [12].

This study aims to evaluate the application and results of breast and cervical cancer screening in the Black Sea region's Giresun province.

Materials and methods

This study is a descriptive and cross-sectional community-based study. The study examines the screening results of female patients aged 30–69 years who applied to the Giresun Cancer Early Diagnosis Screening and Education Center (CEDSEC) for cervical cancer and breast cancer screening between July 1, 2021, and June 28, 2022. The results were evaluated retrospectively through the public health management system used in primary care in Turkey. The results of mammography imaging performed for breast cancer screening were reported at the national evaluation center with the BIRADS (Breast Imaging Reporting and Dated System) scoring system. Cervical cancer screening is performed by collecting cervical swab samples distributed through barcoded kits, after which cytology and HPV DNA analysis are performed on the samples sent by our institution to the national central laboratory. This study analyzed the age, HPV type, and cervical cytology results of mammography report results and HPV DNA–positive patients who applied to CEDSEC in the last year.

The study was approved by the Scientific Research Ethics Committee of Ordu University (decision date: 02/9/2022, decision no: 2022/201). The research conforms to the principles set forth in the Declaration of Helsinki. Informed consent was not obtained from patients due to the retrospective nature of the study.

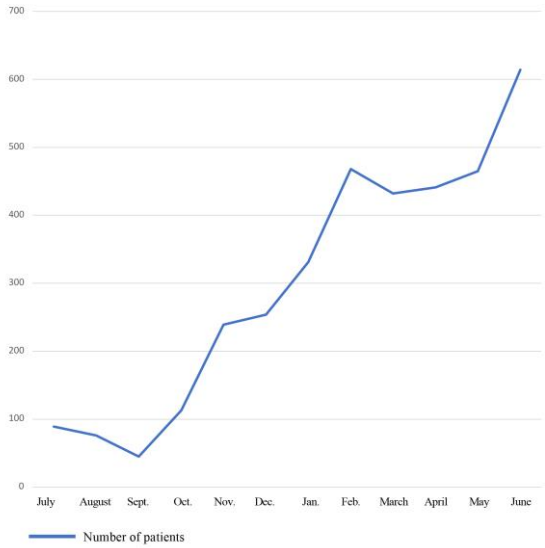
Statistical analysis

Data were transferred to the SPSS v. 22.0 (IBM; Chicago, IL) software program for analysis. Descriptive statistical methods (mean, standard deviation, percentage) were used while evaluating the data. HPV type and cytology results were detected after cervical cancer screening of women, results of mammography for breast cancer screening were evaluated, and their frequency and percentage were determined.

Results

A total of 3567 people received a mammogram within the scope of the breast cancer screening program in the cancer early diagnosis screening and education center in our province. Based on the mammography results, 7.7% (278) of the patients were BIRADS 0, 91% (3256) were BIRADS 1–2, 0.7% (25) were BIRADS 4, and 0.14% were BIRADS 5 (5). The mammography results of three people were inconclusive due to insufficient imaging. At the time of the study, the effects of the COVID-19 pandemic manifested as a decrease in patient applications for cancer screening. In the last 6 months of the 1-year period in which the study was conducted, patient applications for breast cancer screening increased compared to the first 6 months (Figure 1).

Figure 1: Distribution of patient admissions for mammography over a one-year period



The mean age of the 2326 patients who applied for cervical cancer screening was 48.53 years. The scan result was positive in 6.44% (n=150) of the patients, and in 0.38% (n=9), it was reported as insufficient material and required re-screening. When the HPV types detected were examined, the two most common types were HPV 16 at a rate of 13.6% and HPV 56 at a rate of 11.9%. HPV 18 was the least detected HPV type in patients, at a rate of 3.7% (Table 1). When the Pap smear cytology results of women with positive screening results were examined, 3.33% (n=5) were found to have atypical squamous cells of uncertain significance (ASC-US), 22% were found to

have infection, 62.6% (n=18) were found to be normal, and 12% had insufficient material.

Table 1: Distribution of HPV types detected in cervical cancer screening

HPV type	n	%	HPV type	n	%
16	33	13.6	33	11	4.5
31	15	6.19	58	13	5.8
51	21	8.6	68	13	5.3
52	25	10.3	35	10	4.1
56	29	11.9	45	12	4.9
39	18	7.4	59	11	4.5
18	9	3.7	other	22	9.09

More than one type of HPV was detected in patients. Other: HPV types other than the 13 types included in the table.

Discussion

District health directorates, CEDSECs community health centers, and family medicine units work together to reach the target population for cancer screening in Turkey. Family physicians and family health workers in primary care play an active role in informing the community about cancer screenings because they are in direct communication with patients.

In this study, 2326 people applied for cervical cancer screening in a 1-year period. The number of patients who applied for cervical cancer screening was less than the number of patients who applied for mammography. This difference may be related to the cultural structure and beliefs in Turkey. According to the results of a breast cancer screening program between 2016 and 2017 that included 15,294 women, BIRADS 4–5 was found in 0.6% of their sample, BIRADS 0 in 3.9%, and the others were reported as BIRADS 1–2 [13]. Again, in a study conducted with 3758 participants in Istanbul, the rate of BIRADS 0 was found to be 18.4% and the rate of BIRADS 4–5 was found to be 0.5% [14]. In a study conducted by Tuncez et al. [15], the rate of patients with BIRADS 0 in mammography was 9.7%, the rate of patients with BIRADS 1–2 was 87.5%, and the rate of patients with BIRADS 4–5 was 0.9%. In our study, in the breast cancer screening results of 3567 patients who were screened in total, the rate of those with BIRADS 1–2 was 91%, those with BIRADS 0 was 7.7%, those with BIRADS 4 was 0.7%, and those with BIRADS 5 was 0.14%. These findings are similar to other studies in the literature. It is important that patients with BIRADS 4–5 are referred to tertiary health institutions for further examination.

The number of patients who applied for breast cancer screening in the first 6 months of the 1-year period in which the study was conducted was less than the last 6 months. 77.1% of the applications were made in 2022. In this context, the long-term effects of the pandemic may have reduced the frequency of cancer screening in the first period of my study. In addition, this situation may have prevented reaching the target population, limiting the generalizability of our screening results to the general population.

Some HPV types have a very high risk of developing into cervical cancer. The purpose of screening for early diagnosis worldwide is to search for HPV infection and, if HPV is found, to clarify the type and apply the referral algorithm appropriate to the risk level [16].

In a study conducted in the United States evaluating Pap smear test results, abnormal cytology was found in 5.5% of the patients, of which 3.3% were found to have ASC-US (atypical squamous cells of uncertain significance) [17]. In studies conducted in our country for cervical cancer screening, abnormal Pap smear test results varying between 2.3% and 5.3% were found, most of which were determined as ASC-US at a rate of 1.9%–4.2%, and low-grade squamous intraepithelial lesion (LSIL) at a rate of 0.3%–0.8% [18]. In a study by Tuncez et al. [15], abnormal cytology was detected in 10.6% of the Pap smear test results, 7.1% of which were ASC-US and 2.6% of which were LSIL. In another study, 39.6% Pap smear test positivity was found, and the rate of referral to an advanced center for colposcopy was 4.6% [19]. In a study including 14,899 people in Brazil, ASC-US was found in 3.4% of cervical swabs [20]. In that study, when the Pap smear cytology results of women with positive screening results were examined, 3.33% (n=5) were ASC-US and 22% were found to have infection, which is similar to the literature. In our study, 62.6% (n=18) of Pap smear test results were normal and 12% had insufficient material. In Turkey, the Pap smear test and HPV-DNA test are performed together as a co-test as part of the National cancer screening program. Accordingly, cervical cancers that will require further examination can be detected more practically. Additionally, the detection of high cervical cancer risk factors of HPV 16 and HPV 18 types in the primary care setting followed by a referral to a gynecologist with cytology saves time.

In a study to examine the distribution of HPV types in China, HPV 52, HPV 16, and HPV 58 were the most frequently observed HPV types, at rates of 20.31%, 16.81%, and 14.4%, respectively. The same study found HPV positivity to be 79.56% [21] in 2950 cases. In the ATHENA research conducted in 2015, the most common HPV type detected in a detailed examination according to age groups is HPV 16, and in order of frequency, HPV 52, HPV 31, HPV 18 are the most common types [22]. In a systematic study in which data between 2005 and 2019 were analyzed, the most frequently detected HPV types were HPV 16, HPV 52, HPV 35, HPV 18, and HPV 56 [23]. When the HPV types seen in this study are examined, the two most common types are HPV 16 at 13.6% and HPV 56 at 11.9%. HPV 18 was the least detected human papillomavirus type in patients, at a rate of 3.7%. The fact that HPV 16, which increases the risk of cervical cancer, is the most common type in this study supports screening programs. This method allows for referring the patients from primary care to the gynecologist in the early period and to take them under observation before precancerous lesions occur. In the literature are studies showing that approximately 13 million new cervical cancer cases can be prevented by 2070 with both HPV immunization and cervical cancer screening algorithm after 2020, and that cervical cancer cases can be almost completely eradicated in some countries [24].

Limitations

Some of the dates of the study coincide with the period where the effects of the COVID-19 pandemic continued to manifest. This may have contributed to the lower number of patient applications for cancer screening than in previous years and may have limited the generalizability of our results. Due to the disruptions in the referral chain, seasonal migration, and the fact that this study was conducted in an agricultural and difficult-to-access area, adequate feedback could not be provided regarding further investigations after tertiary referrals.

Conclusion

Both breast and cervical cancer have high rates of survival if diagnosed early. In this sense, the high awareness of healthcare professionals about cancer screenings will benefit both the healthcare system and female patients by increasing breast and cervical cancer screenings. Community health centers in primary care positions throughout Turkey organize educational programs to raise awareness about health screenings in remote regions. Making these educational programs increasingly available can raise awareness in the community and increase participation in cancer screenings. In addition, after the outcome evaluation in cancer screening programs, when necessary, patients should be referred to tertiary healthcare institutions for further examination, and the results should be followed. Finally, reaching the target population in breast and cervical cancer screenings in our country will be possible primarily by supporting health professionals working in health institutions with in-service training.

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