

OVERVIEW OF THE MAIN METHODS OF BREAST CANCER SCREENING

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Abstract

A brief overview of the main methods of breast cancer screening is presented. The effectiveness of mammography as a screening method in reducing mortality from breast cancer is proven, and the limitations of the method are indicated. The main trend in increasing the effectiveness of screening is the transition to digital technologies. Properly organized screening with active participation of the population reduces mortality from breast cancer by 30%.

Keywords: breast cancer, screening, mortality, mammography.

КЎКРАК БЕЗИ САРАТОНИ СКРИНИНГ АСОСИЙ УСУЛЛАРИ ҲАҚИДА УМУМИЙ МАЪЛУМОТ

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Аннотация

Мақолада кўкрак беzi саратони скринингининг асосий усуллари ҳақида қисқача маълумот берилган. Кўкрак беzi саратони ўлимини камайтиришда скрининг усули сифатида маммографиянинг самарадорлиги исботланган ва усулнинг чекловлари кўрсатилган. Скрининг самарадорлигини оширишнинг асосий тенденцияси рақамли технологияларга ўтишдир. Аҳолининг фаол иштирокида тўғри ташкил этилган скрининг кўкрак беzi саратонидан ўлимни 30 фоизга камайтиради.

Калит сўзлар: кўкрак беzi саратони, скрининг, ўлим, маммография.

ОБЗОР ОСНОВНЫХ МЕТОДОВ СКРИНИНГА РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ

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Аннотация

Представлен краткий обзор основных методов скрининга рака молочной железы. Доказана эффективность маммографии как скринингового метода в снижении смертности от рака молочной железы, указаны ограничения метода. Основной тенденцией повышения

эффективности скрининга является переход на цифровые технологии. Правильно организованный скрининг при активном участии населения сокращает смертность от РМЖ на 30%.

Ключевые слова: рак молочной железы, скрининг, смертность, маммография.

Introduction. Breast cancer (BC) is one of the leading causes of cancer in women. Breast cancer incidence is steadily increasing by 1-2% annually, with more than 1 million new cases registered worldwide each year.

In Uzbekistan, there is an increase in the number of patients with primary breast cancer per 100,000 women, which in the Republic of Uzbekistan as a whole was 6.6. In the regions of Uzbekistan, the highest increase in incidence was noted in the Republic of Karakalpakstan - 1.7 times, and in the city of Tashkent - 1.5 times. In 2018, 3,578 women with breast cancer were registered in Uzbekistan. Today, about 18,000 women are diagnosed with breast cancer. The five-year survival rate is currently 45%, and the one-year mortality is 1.1% [5]. Mortality from breast cancer has also increased from 1985 to 2004, and this increase is greater in Bukhara and Surkhandarya . p area - 3.9; B 3.8 times, respectively. A third of these deaths could have been avoided through screening - preventive mammography in healthy women, which allows detecting curable tumors at early stages [3, 4, 5, 12]. A threatening trend of the last decade has been the "rejuvenation" of breast cancer. This has led to an increase in breast cancer incidence by 34% in women aged 19-39. This forces us to look for ways to accelerate the implementation of new technologies not only to detect early signs of the disease, but also to develop preventive measures [2, 8].

Breast cancer diagnosed at an early stage has a good prognosis, with high rates of relapse-free and overall survival: at stage I, 95-100% of patients survive for five years.

Early diagnosis and adequate treatment of breast cancer, taking into account the biological characteristics of the tumor, fully guarantees the patient's return to society [7].

Currently, screening is the main method of diagnosis and secondary prevention of cancer at preclinical stages.

The goal of breast cancer screening is to detect tumors before clinical symptoms appear and reduce mortality [1].

Over the past 3 years, there has been an increase in the incidence of breast cancer in Uzbekistan. According to official data, 3,718 new cases were registered in 2019 and 4,164 in 2022 (an increase of 12%). The mortality rate is higher (5.0/100 thousand) than from other oncological diseases. The World Health Organization (WHO) developed recommendations on screening principles back in 1968, which are still relevant today [9]. The main provisions are as follows:

- that the disease is an important medical problem, is widespread and has social significance;
- that there are methods of treating the disease;
- that the disease can be diagnosed and treated;
- the disease has an incubation period;
- there must be a diagnostic test that allows for the reliable detection of the disease at the preclinical stage;
- the research method must be acceptable to the population;
- screening should lead to a reduction in mortality from the disease in a given population;
- the economic costs of early diagnosis should be lower than the costs of treating patients with clinical symptoms;
- screening should be continuous.

According to the International Agency for Research on Cancer (IARC, Lyon), breast cancer is the "ideal" tumor for population screening. Of the 10 million cases of malignant neoplasms of various localizations newly detected worldwide, 10% are in the mammary gland.

According to the WHO, the following is necessary for high-quality mammographic screening.

1. equipped with modern diagnostic equipment, including digital mammography, multifunctional devices for stereotactic biopsy of non-palpable tumors and high-resolution ultrasound equipment;
2. active participation of the female population in screening (at least 70% of those eligible for screening)
3. referral for screening tests of only healthy women who do not complain of the presence of tumors in the mammary gland
4. age of the target population - from 50 to 69 years;
5. the presence of a cancer registry for accurate recording of morbidity and mortality.

Between 1963 and 1994, eight randomized trials of breast cancer screening were conducted in different countries. **The results of these studies** showed the importance of mammography, clinical breast examination (CBE) and self-examination mammary glands (SOGM), as well as their impact on breast cancer mortality.

Self-examination method is attractive because it is accessible. Its sensitivity is about 26%, which is lower than that of clinical examination or mammography. The effectiveness of these programs depends on the quality of women's work. Self-examination is more effective when combined with mammography. It is useful in areas where mammographic screening is not available.

Mammography screening and regular medical examinations are not available.

Introduction of breast self-examination (BSE - Breast Self-Examination) is based on motivating and training women to regularly self-examination.

Unfortunately, only 8% of women perform regular monthly self-examination, and 36% do not perform it regularly [5, 6, 16].

The most common type of breast examination is the clinical (physical) breast examination (CBE – Clinical Breast Examination), conducted by a health care professional.

According to Canadian researchers, CMO methods have high specificity (95-99%) and sensitivity of 47-80%; based on 2740 Ciatto studies et al . found that the sensitivity of CME varies depending on the stage: 48% - breast cancer in situ , 70% - stage I, 90% - stage II, 89% - stage III, 93% - stage IV. Stage III, 93% - stage IV, as well as by age categories: 77% - 20-29 years old, 58% - 30-39 years old, 75% - 40-49 years old, 84% - 50-59 years old, 90% - 60-69 years old and 94% - 69 years old and older (Ciatto et al , 1991) The sensitivity of clinical breast examination decreases with age and younger [9].

Mammography (IARC, Lyon) is currently the only screening test that reduces breast cancer mortality. The concept of mass radiological screening of healthy women was first introduced.

It was proposed by Cohen et al. (1958); Cohen et al. An evidence-based approach to screening using routine physical examination was introduced into clinical practice in 1975 by physicians P.S. Frame and S.J. Carlson.

Their proposal was substantiated by the Canadian Commission on Periodic Preventive Screening. According to WHO experts, mammographic screening can be introduced on a national scale only in countries with significant economic development. For example, even in the USA, the rate of coverage of mammographic screening of women aged 40 and older in 2000 was 70%, and the rate of coverage of mammography and clinical examination of the mammary glands was 55.5%. The highest rates of breast cancer screening coverage are observed in the Scandinavian countries: 89% of women in Finland and 81% in Sweden participate in screening [11, 15, 18]. According to the above sources, mammography reduces mortality from breast cancer by 17% in women aged 40-49, by 30% in women aged 50-69 after 5-7 years, and by 20% after 15-20 years.

Mammographic screening has increased the detection rate of ductal carcinoma in situ (DCIS). Thus, 80% of cancers in situ is detected only by mammography: in the United States in 1991, about 12% of breast cancers detected by mammography were DCIS; 5% of women under 40, 25% of those aged 40-49, and 43% of those aged 50-59 were diagnosed with DCIS. The difficulty in diagnosing noninvasive cancer is due to the diversity and atypicality of its manifestations: microcalcifications in 72% of

cases, combined with compaction of structures in 12%, compaction only in 10%, and asymptomatic course in 6%.

One of the advantages of screening is the timely detection of benign breast diseases, since their timely treatment is the prevention of breast cancer. Thus, in 10.3% of cases, nodular benign formations were detected. Breast cancer was detected in 0.7% of women and in 5.5%, other pathologies were detected. In total, 7992 cases of breast cancer were detected over the nine-year period of breast cancer screening in Moscow.

In 2004–2012, 96 patients with cancer were identified using screening. situ (1.2%), 3276 patients with stage I breast cancer (41%), stage II breast cancer was detected in 4313 people (54%), stage III breast cancer - 279 (3.5%), with stage IV breast cancer - 28 (0.3%). The detection rate of breast cancer during screening in Moscow averaged 2.2 per 1000 women examined. The sensitivity of screening mammography was 88%.

Conclusion. The goals of mammographic screening can be achieved only with properly organized and high-quality examination, including active participation of the population in screening, the use of modern highly sensitive equipment, subsequent accurate differential diagnosis of detected tumors and timely treatment.

High-quality mammographic screening ultimately significantly (up to 30%) reduces mortality from breast cancer. Women who, for various reasons, do not participate in mammographic screening should be informed about the need for such examination methods as physical examination and self-examination. However, these methods do not allow for the effective recognition of the earliest symptoms of the disease and the provision of organ-preserving treatment, and do not contribute to improving the quality of life and increasing its duration.

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