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EPIDEMIOLOGY OF BREAST CANCER IN KAZAKHSTAN: THE ANALYSIS OF MORBIDITY, MORTALITY, AND DISEASE STAGING IN 2015-2024

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АННОТАЦИЯ

Relevance: *Breast cancer (BC) ranks first in terms of prevalence among all malignant neoplasms in women in the Republic of Kazakhstan. Over the period 2015-2024, there has been a steady increase in the incidence, with the disease increasingly being detected in older women. Despite ongoing screening programs, breast cancer remains a significant cause of cancer mortality. For the first time, a comprehensive 10-year analysis of national breast cancer data was conducted with an assessment of the dynamics of morbidity, mortality, stage, and five-year survival.*

The study aimed to *analyze changes in the incidence, mortality, survival, and stage of BC in women in the RK from 2015 to 2024 to assess the effectiveness of measures for early detection and treatment of the disease.*

Methods: *The BC incidence and mortality analysis for 2015-2024 was based on official statistical reports (forms No. 7 and No. 090/U) and data from the national cancer registry. Demographic indicators were obtained from open sources of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan. Statistical processing was performed using SPSS software (version 23.0) with descriptive statistical methods, including calculating the means, confidence intervals, and trend rates.*

Results: *During the study period, the incidence rate of BC increased from 45.7 to 47.6 per 100,000 women, while mortality decreased from 14.2 to 7.8. Five-year survival rose by 81%, from 16,740 to 30,267 patients. The proportion of early-stage diagnoses (I-II) increased from 81.5% to 88.7%, and stage III cases nearly halved. The highest incidence was recorded in the 65-69 age group.*

A link has been established between screening coverage and mortality reduction. The results obtained refine and expand the previously presented regional data, providing a basis for improving preventive programs and enhancing the effectiveness of cancer care.

Conclusion: *Kazakhstan demonstrates a steady rise in BC incidence alongside a reduction in mortality and improvements in early diagnosis. These trends affirm the effectiveness of screening programs and oncologic care, although the stable rate of stage IV diagnoses highlights the need to eliminate barriers to timely medical consultation.*

Keywords: *epidemiology, breast cancer, Kazakhstan, incidence, mortality, survival, screening.*

Introduction: Breast cancer (BC) occupies a leading place in global oncological statistics. In 2020, 2.3 million new cases were registered, which is 11.7% of all malignant neoplasms (MN), and 685 thousand deaths, making it the fifth leading cause of cancer death. In women, it accounts for about 25% of all MN and 16% of cancer deaths, ranking first in incidence in 159 countries and mortality in 110 [1]. In 2022, the annual incidence remained at 2.3 million, and the mortality rate was about 670 thousand. BC occurs in women of all ages after puberty, but the risk increases with age. In countries with a high development index, the probability of getting sick is 1 in 12, and dying is 1 in 71; in countries with a low Human Development Index (HDI), 1 in 27 and 1 in 48, respectively [2]. High incidence rates (>80 per 100,000) are recorded in developed countries – Western Europe, Australia, and the USA. The lowest rates are in Central America, Africa, and South Asia. However, the mortality rate is higher in countries with transition economies, which is associated with limited access to early diagnosis and treatment. The main factors of growth are reproductive, hormonal, and behavioral (alcohol, obesity, physical inactivity), as well as the expansion of mammographic screening in developed countries [1].

According to the World Health Organization (WHO), mammography screening every 2 years is recommended in resource-rich countries for women aged 50–69 years without high risk [3]. The American Cancer Society recommends annual screening beginning at age 45, with the option to begin at age 40 and continue as long as general health and life expectancy ≥10 years allow [4].

In Kazakhstan, breast cancer remains the most common malignant disease in women. According to the national epidemiological study, 22 cases were registered in the period 2017-2021. 736 new cases, which is 14% more than in previous years. The largest number of diagnoses occurred in 2019 and 2021 (4945 and 4939, respectively). The most vulnerable age category is women aged 65-74. In 44.6% of cases, the tumor was localized in the upper outer quadrant of the mammary gland (C50.4). At early stages (I-II), the disease was detected in 67.2% of cases, while stage IV

was diagnosed in only 4.6% of patients. Ethnic distribution showed a predominance of women of Kazakh nationality (48.1%), followed by Russians (33.1%) [5, 6]. An in-depth analysis within the ethnic group of Kazakh women showed that breast cancer accounts for 26.3% of all registered cases of malignant neoplasms and is the cause of 8.7% of all cancer deaths in this population [7]. Risk factors are divided into modifiable (obesity, physical inactivity, alcohol, hormones, radiation) and non-modifiable (age, BRCA1/2, TP53, PALB2 mutations, early menarche, late menopause, no childbirth). Physical activity, breastfeeding, and abstinence from alcohol have a protective effect [8].

In women with BRCA1/2 mutations, the risk of breast cancer reaches 69-72%, and ovarian cancer amounts to 17-44% by the age of 80 [9]. Molecular biological diagnostics of breast cancer includes assessment of expression of hormonal receptors (estrogen and progesterone), HER2 receptor, and level of proliferative activity by the Ki-67 marker. This approach allows identifying the subtype of HR-positive tumors for which targeted and hormonal therapy regimens have been developed and successfully used [10]. Breast cancer is a heterogeneous disease with a pronounced genetic component. It has been established that mutations in *the BRCA1/2*, *TP53*, *PTEN,* and other genes significantly increase the risk of breast cancer, which emphasizes the importance of introducing genetic screening and personalized preventive strategies [11].

The study aimed to analyze changes in the incidence, mortality, survival, and stage of BC in women in the RK from 2015 to 2024 to assess the effectiveness of measures for early detection and treatment of the disease.

Materials and methods: The analysis of the dynamics and structure of breast cancer morbidity and mortality among the female population of the Republic of Kazakhstan for the period 2015-2024 was conducted based on official statistical reporting data provided by health authorities. The incidence and mortality rates per 100,000 female population, five-year survival, and distribution of cases by disease stage at the time of primary diagnosis were estimated. Descriptive statistics were used as research methods, including calculation of mean values, confidence intervals, and average annual growth or decline rates. Official statistical and registration sources were used to conduct the epidemiological analysis. Information on malignant neoplasms was selected by localization codes under the International Classification of Diseases, 10th revision (ICD-10). The sample was based on data from the Electronic Registry of Cancer Patients (National Cancer Registry), as well as annual forms of state statistical reporting, including form No. 7 "Report on Malignant Neoplasms" for the period 2015-2024 and individual cards of primary cancer patients (form No. 090/U). To calculate the demographic coefficients, the materials of the Statistics Agency of the Republic of Kazakhstan were used, reflecting the number, age, and sex structure of the population of the Republic of Kazakhstan for the period under review.

Results: In 2015-2024, the total number of patients registered with malignant neoplasms increased from 156,280 to 231,019. The number of those who survived more than 5 years after diagnosis increased from 79,387 to 125,858. The indicators for breast cancer also show growth: the number of patients increased from 31,352 to 51,484, and the five-year survival rate increased from 16,740 to 30,267. The proportion of breast cancer among all malignant neoplasms increased from 20.1% in 2015 to 22.3% in 2024 (Fig. 1).

Dynamics of intensive and standardized rates of breast cancer incidence (2015-2024). Over the analyzed period, there has been a steady upward trend in both intensive and standardized rates of breast cancer incidence among the female population. The incidence rate increased from 48.8 per 100,000 women in 2015 to 55.1 in 2024, reaching its maximum for the entire analyzed period. The standardized rate also increased – from 45.7 to 47.6 per 100,000. There is a general upward trend, with a significant decline in 2020 and a subsequent rise, which may be due to fluctuations in screening coverage and the influence of external factors (e.g., the COVID-19 pandemic) (Fig. 2).

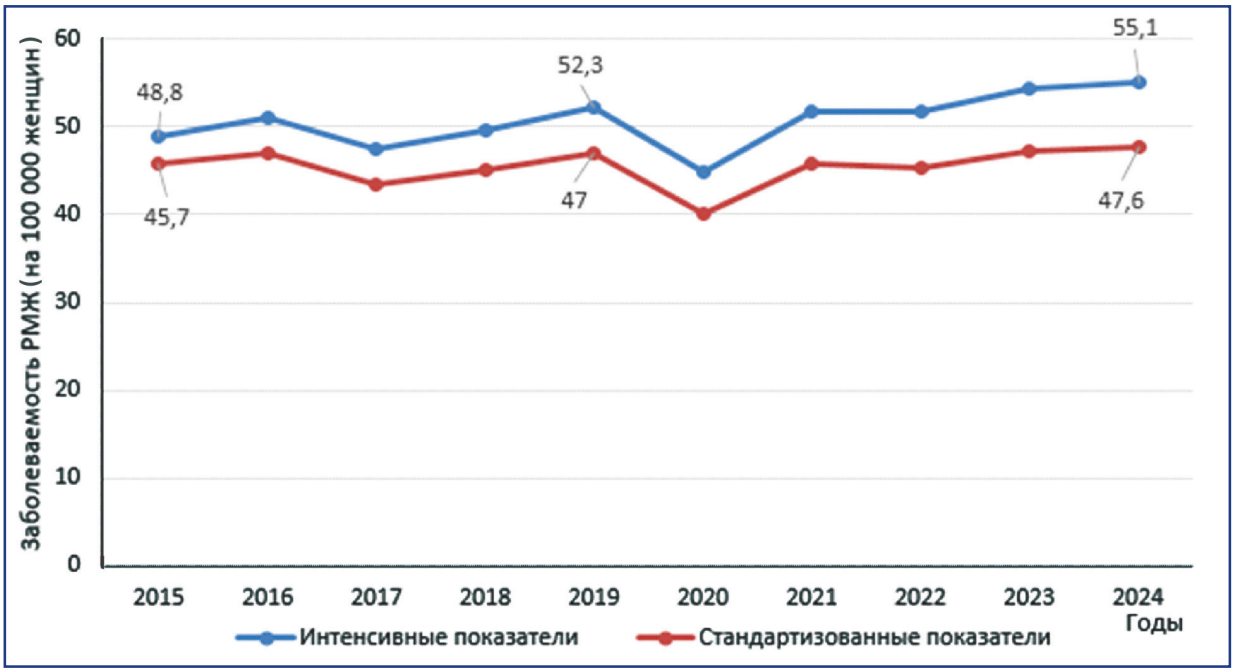
From 2015 to 2024, Kazakhstan has seen a steady downward trend in both intensive and standardized breast cancer mortality rates. The intensive rate decreased from 15.4 to 10.1 per 100,000 women, and the standardized rate decreased from 14.2 to 7.8. A particularly pronounced decrease was noted after 2021, which may reflect increased diagnostic and treatment efficiency (Fig. 3).

Comparison of incidence, mortality, and the ratio between them by intensive indicators (2015-2024). Figures 2-4 reflect the dynamics of intensive (crude) indicators of incidence and mortality from breast cancer per 100,000 women in Kazakhstan, as well as the ratio between them (%). Over the analyzed period, incidence increased from 48.8 to 55.1, while mortality decreased from 15.4 to 10.1. This led to a decrease in the relative case-fatality rate from 31.6% to 25.9%.

The most pronounced decrease in mortality was observed in 2022 (up to 20.5%), after which the indicator increased slightly. Such dynamics indicate an improvement in diagnostics and treatment, with a simultaneous increase in detection (Fig. 4).

Comparison of standardized incidence, mortality rates, and their ratio (2015-2024). Figures 2-4 also present standardized (by age) incidence and mortality rates from breast cancer in Kazakhstan and their ratio in percentage. Over the period from 2015 to 2024, incidence increased from 45.7 to 47.6 per 100,000 women, while mortality decreased from 14.2 to 7.8, which reflects an almost twofold decrease. The mortality-to-incidence ratio (CFR) decreased from 31.1% in 2015 to 16.4% in 2024, with the lowest value in the last two years (Fig. 5).

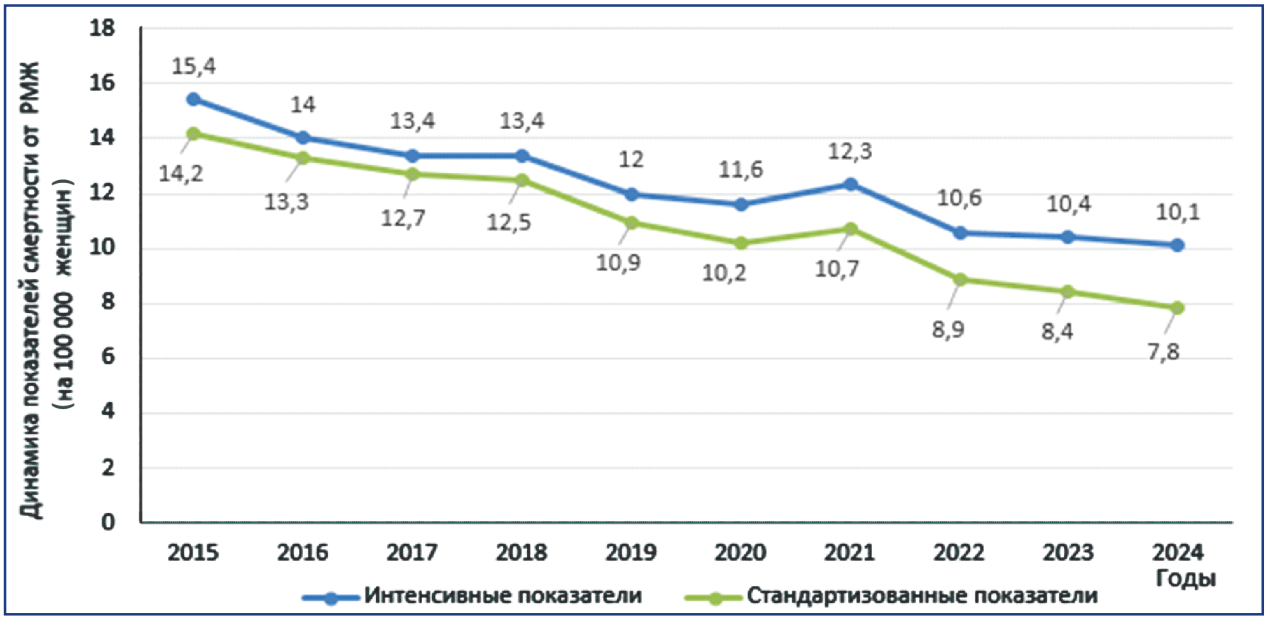
Legend: Y axis – Share of breast cancer cases among all MNOs (%), X axis – Breast cancer shares curve (years)
Figure 1 – The share of breast cancer in the total number of malignant neoplasms in Kazakhstan, 2015-2024 (%)



Legend: Y axis – Breast cancer incidence (per 100,000 female population), X axis – Years; Blue line – Intencive rates; Red liine – Standardized rates
Figure 2 – Dynamics of intensive and standardized incidence of breast cancer in Kazakhstan, 2015-2024 (per 100,000 women)

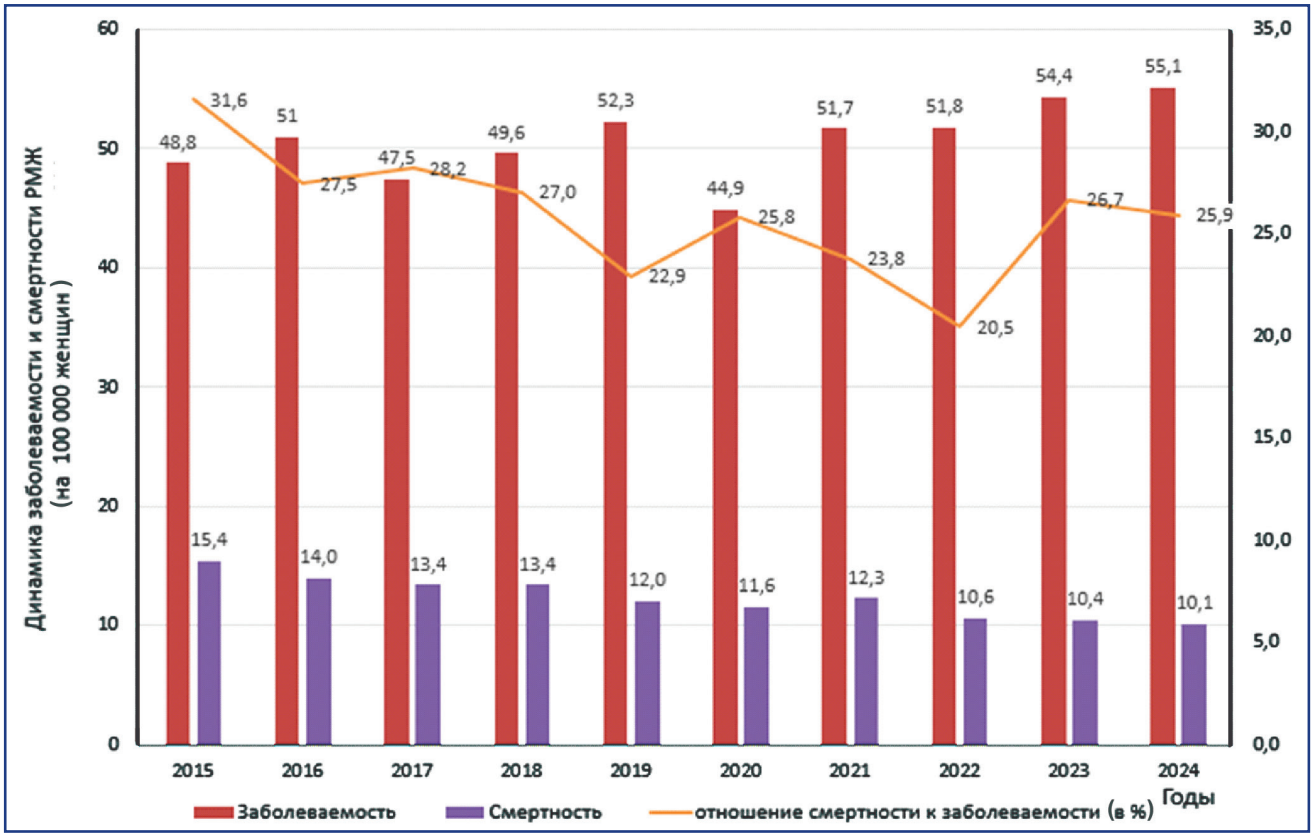
A comparative analysis of the structure of stages at the time of primary diagnosis of breast cancer in 2015 and 2024 demonstrates a clear positive trend towards earlier detection of the disease. In 2015, the bulk of cases were at stages I-II, which together accounted for 81.5% of all registered diagnoses. At the same time, stage III accounted for 13.8% of cases, and stage IV, 4.7%, which indicated a relatively high level of early diagnosis even at the initial stage of the period under review. By 2024, the structure of detection was clarified by dividing stages I and II. The first stage was diagnosed in 37.4% of cases, the second in 51.3%, which in total amounted to 88.7% of early detection. The proportion of patients with stage III decreased almost twofold, to 7.1%, while stage IV remained at a comparable level of 4.2%. Thus, over the decade, there has been a steady improvement in the rates of timely treatment and diagno-

sis. The increase in the proportion of early stages with a simultaneous reduction in later forms of the disease indicates the effectiveness of the mammographic screening programs implemented in the country, increased public awareness, and improvements in the work of primary health care. At the same time, maintaining the proportion of stage IV at the same level requires additional attention, taking into account both regional differences in the availability of diagnostics and the characteristics of the course of the disease in certain groups of patients (Fig. 6).



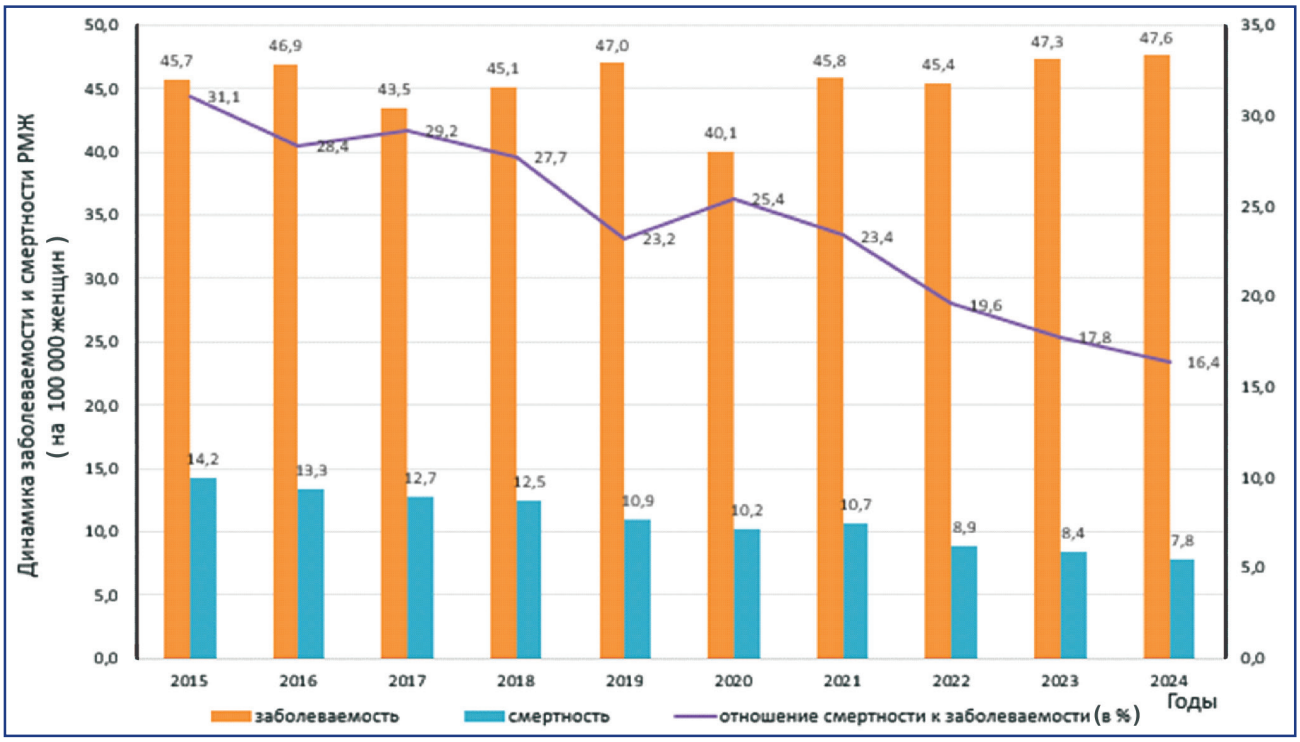
Legend: Y axis – Breast cancer mortality trends (per 100,000 female population), X axis – Years; Blue line – Intencive rates; Red liine – Standardized rates

Figure 3 – Dynamics of intensive and standardized mortality from breast cancer in Kazakhstan, 2015-2024 (per 100,000 women)



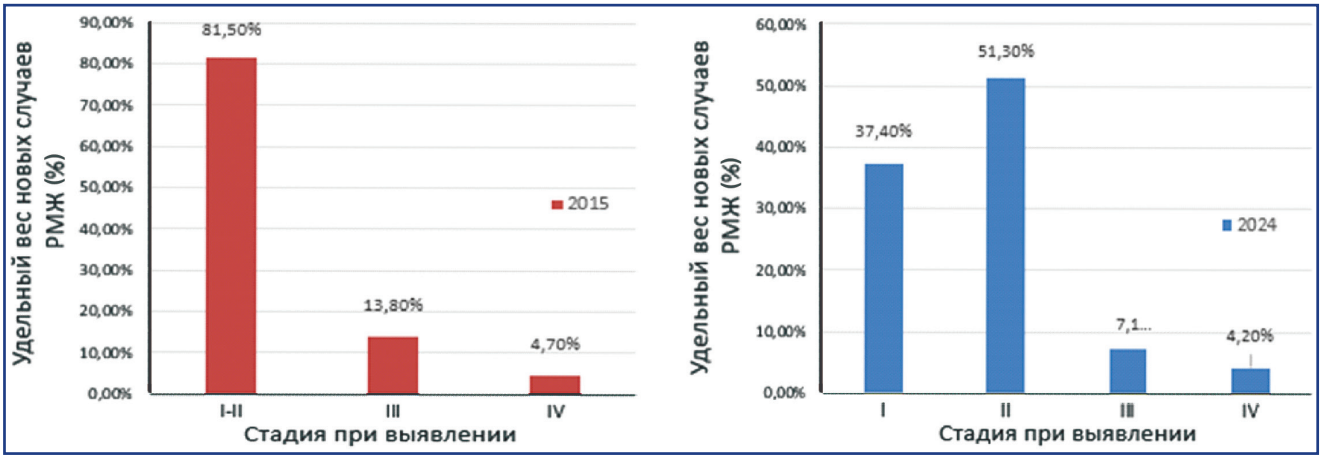
Legend: Y axis – Breast cancer incidence & mortality (per 100,000 female population), X axis – Years; Red bars – Incidence; Violet bars – Mortality; Yellow line – Incidence-to-Mortality ratio (%)

Figure 4 – Intensive incidence & mortality rates and their ratios in breast cancer in Kazakhstan, 2015-2024 (per 100,000 women)



Legend: Y axis – Breast cancer incidence & mortality (per 100,000 female population), X axis – Years; Red bars – Incidence; Violet bars – Mortality; Yellow line – Incidence-to-Mortality ratio (%)

Figure 5 – Standardized incidence & mortality rates and their ratios in breast cancer in Kazakhstan, 2015-2024 (per 100,000 women)



A B

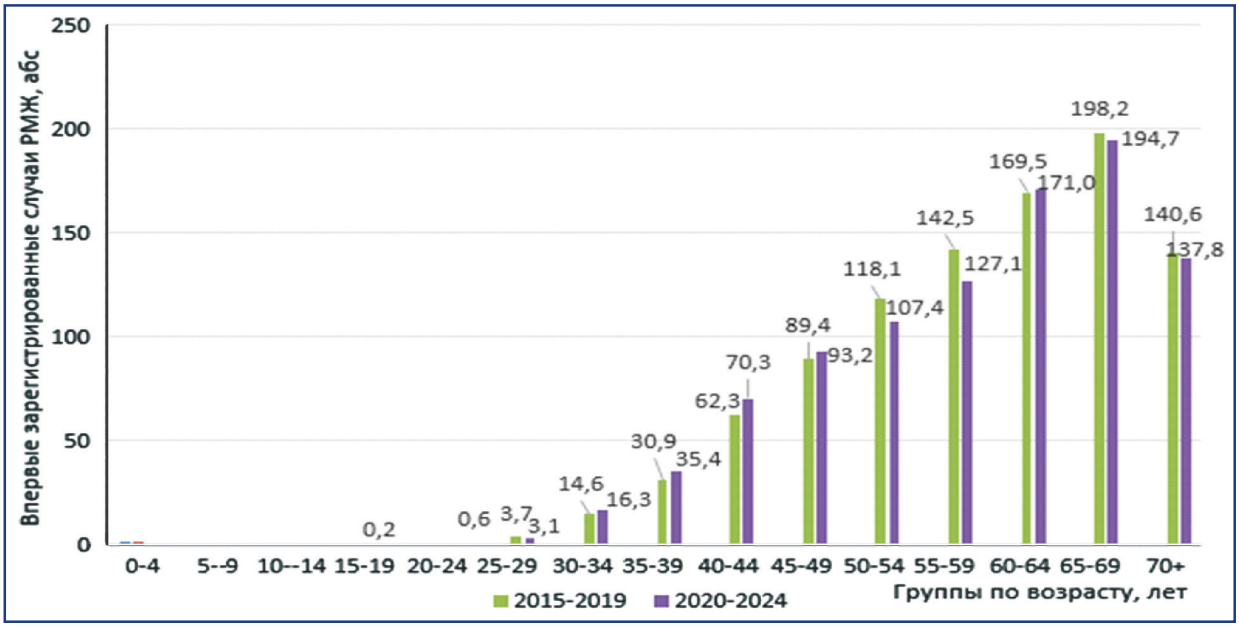
Legend: Y axis – Share of new breast cancer cases (%); X axis – Stage at detection

Figure 6 – Distribution of breast cancer cases by stage at detection, Kazakhstan: A – in 2015, B – in 2024

An analysis of the age structure of breast cancer incidence showed a clear tendency for rates to increase with age. The lowest incidence rates are observed in age groups up to 25 years, where the values do not exceed 3.7 per 100,000 women. From the age of 30, a gradual increase is observed: from 14.6-16.3 per 100 thousand among women aged 30-34 years to maximum rates in the 60-64 and 65-69 age groups. The highest incidence rate was recorded in the 65-69 age category: 198.2 per 100 thousand in 2015-2019 and 194.7 per 100 thousand in 2020-2024. They are followed by the 60-64 year old group (169.5 and 171.0 per 100 thousand) and 70+ (140.6 and 137.8 per 100 thousand), which confirms the predominant development of the disease in older age groups. It is clear that the increase in morbidity in the second five-year period compared to the first was observed in all age cohorts starting from 35 years and was most pronounced in the 35–39-year-old group (an increase from 30.9 to 35.4 per 100 thousand) (Fig. 7).

Discussion: The obtained data reflect global trends in oncology: an increase in morbidity with a simultaneous decrease in mortality from breast cancer. This may be due to improved accessibility of diagnostics, the introduction of screening programs, modernization of oncology services, and more active oncology alertness among both the population and primary care physicians.

Similar epidemiological shifts have been recorded in some CIS countries. Thus, in the Republic of Belarus, standardized incidence rates of breast cancer have increased significantly in all regions over the past decades, especially in Minsk, which confirms a real increase in incidence rates that is not due solely to population aging [12]. In the Russian Federation, over the period 2000-2015, the standardized incidence rate increased by 30.4%, with the largest increase in the group of women aged 65-79, which is consistent with the results of the present analysis, where the peak incidence rate is also observed at the age of 65-69 [13].



Legend: Y axis – First registered breast cancer cases, abs.; X axis – Age groups, years

Figure 7 – Comparison of breast cancer incidence by age groups in Kazakhstan,2015-2019 and 2020-2024

Data from the Kyrgyz Republic confirms that breast cancer often affects Kyrgyz women at a younger age, with the highest increase recorded at the ages of 40-49 and 50-59 [14]. This requires adaptation of screening approaches depending on the ethnic and age characteristics of the populations. Similar findings are presented in studies on Uzbekistan and Tajikistan: mortality from breast cancer has a significant impact on the life expectancy of women, and the highest incidence is recorded at the age of 40-59 [15]. These data emphasize the universality of the breast cancer problem in the region and the need for coordinated interstate efforts for early diagnosis, access to treatment, and prevention. In Kazakhstan, despite the introduction of a national screening program, significant regional differences in incidence and mortality rates remain. According to previous studies, higher rates were recorded in the North Kazakhstan, Pavlodar, and Karaganda regions, as well as in Almaty, which is probably due to higher availability of diagnostics and oncological care [16]. The increase in the proportion of breast cancer among all malignant neoplasms (from 20.1% to 22.3%) may be due to both the growth of the female population and improved screening coverage. A significant increase in the number of patients under observation for more than 5 years (almost doubling in a decade) confirms the positive dynamics in survival rates.

A significant increase in the proportion of stages I-II at the time of diagnosis indicates the effectiveness of the screening program implemented in Kazakhstan. At the same time, there is a decrease in the frequency of detection of the disease at stage III by almost two times. However, the proportion of stage IV remains stable, which requires a separate analysis of the reasons for late treatment in this group of patients.

The increase in the share of early detection of breast cancer in the Republic of Kazakhstan (up to 88.7% in 2024) demonstrates the effectiveness of the implemented preventive measures. However, the stable share of stage IV, as well as the increase in incidence in young women, indicates the need for further improvement of the age structure of screening and increased cancer alertness among primary care physicians.

The increase in incidence in older age cohorts, especially after 50 years, emphasizes the importance of targeted prevention and expanded coverage within age-specific screening. The steady decline in standardized mortality rates against the background of increasing incidence can be interpreted as a result of improved quality of treatment, including drug and surgical care, the introduction of a multidisciplinary approach, and expanded access to high-tech medical care. However, persistent regional and age differences require additional attention from the healthcare system, including sociological studies of the reasons for late treatment, barriers to screening, and the level of public awareness.

Dynamics of stages of breast cancer detection (2015 and 2024) A comparative analysis of the stage of the disease at primary diagnosis in 2015 and 2024 demonstrates a positive trend towards earlier detection of breast cancer. In 2015, the propor-

tion of patients in whom the disease was detected at stages I–II was 81.5%, of which 13.8% were at stage III and 4.7% at stage IV.

In 2024, stage I accounted for 37.4% of cases, stage II – 51.3%, which in total means the early detection rate of 88.7%. An increase in early detection compared to 2015 reflects positive dynamics in breast cancer timely diagnosis. 7.1% of cases were detected at Stage III, and 4.2% at Stage IV.

The share of early diagnosis (stages I-II) increased by 7.2 percentage points over the decade, while the share of stage III decreased almost twofold, from 13.8% to 7.1%. This indicates an increase in the effectiveness of screening programs and early patient referrals, as well as the development of the early diagnosis system as a whole.

Conclusion: Thus, in the period from 2015 to 2024, the Republic of Kazakhstan has seen an increase in breast cancer incidence, while mortality has decreased and early detection rates have improved. These trends indicate a positive impact of screening programs, increased diagnostic activity, and the development of cancer care in the country. Continuation and expansion of preventive measures, as well as targeted coverage of vulnerable age groups, should become a priority for further reducing cancer mortality from breast cancer.

References:

1. Sung H., Ferlay J., Siegel R., Laversanne M., Soerjomataram I., Jemal A., Bray F. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries // CA Cancer J. Clin. – 2021. – Vol. 71. – P. 209-249. https://doi.org/10.3322/caac.21660

2. World Health Organization. Breast cancer. World Health Organization, 2024 // www.who.int/news-room/fact-sheets/detail/breast-cancer

3. World Health Organization. WHO position paper on mammography screening // apps.who.int. World Health Organization, 2014 // apps.who.int/iris/handle/10665/137339

4. Oeffinger K.C., Fontham E.T., Etzioni R., Herzig A., Michaelson J.S., Shih Y.C., Walter L.C., Church T.R., Flowers C.R., LaMonte S.J., Wolf A.M., DeSantis C., Lortet-Tieulent J., Andrews K., Manassaram-Baptiste D., Saslow D., Smith R.A., Brawley O.W., Wender R.; American Cancer Society. Breast Cancer Screening for Women at Average Risk: 2015 Guideline Update From the American Cancer Society // JAMA. – 2015. – Vol. 314(15). – P. 1599-1614. https://doi.org/10.1001/jama.2015.12783

5. Shertaeva A., Ospanova D., Grjibovsky A., Shamsutdinova A., Rakhmetov N., Dushimova Z., Salimgereeva B., Yermentayeva Zh., Kaketaeva I., Kuandykov Y., Tanabayeva Sh., Fakhradiyev I., Zharmenov S. Study on Breast Cancer in Kazakhstan Using the Functional Time Series // Asian Pac. J. Cancer Prev. – 2023. – Vol. 24, № 3. – P. 1037-1046. https://doi.org/10.31557/APJCP.2023.24.3.1037

6. Dunenova G.A., Kalmataeva Zh.A., Kaidarova D.R., Shatkovskaya O.V., Zhylkaidarova A.Zh., Marchenko E.A., Dyussupova A.A., Faizova R.I., Glushkova N.E. Breast cancer epidemiology in Kazakhstan for the period 2012-2021 // Nauka i Zdravookhranenie [Science & Healthcare]. –2023. – Vol. 25(2). – P. 128-137. https://doi.org/10.34689/SH.2023.25.2.018

7. Shatkovskaya O.V., Ongarbaev B.T., Sejsenbaeva G.T., Azhmagambetova A.E., Zhylkajdarova A.Zh., Lavrent'eva I.K., Sagi M.S. Pokazateli onkologicheskoj sluzhby Respubliki Kazaxstan za 2021 god (statisticheskie i analiticheskie materialy) / pod red. D.R. Kajdarovoj. – Almaty: KazNIIOiR, 2022. – 384 s. [Shatkovskaya O.V., Ongarbaev B.T., Seisenbaeva G.T., Azhmagambetova A.E., Zylkaidarova A.Zh., Lavrentyeva I.K., Sagi M.S. Indicators of the oncological service of the Republic of Kazakhstan for 2021 (statistical and analytical materials) / ed. by D.R. Kaidarova. - Almaty: KazNIIOiR, 2022. - 384 p. [(in Kaz./Russ/En.)]. – ISBN 978-601-7548-20-9. https://onco.kz/wp-content/uploads/2024/10/pokazateli-onkosluzhby-za-2021-g.-okonchatelnyj.pdf

8. Katsura C., Ogunmwonyi I., Kankam H.K., Saha S. Breast cancer: presentation, investigation and management // Br. J. Hospital Med. – 2022. – Vol. 83(2) – P. 1-7. https://doi.org/10.12968/hmed.2021.0459

9. Kuchenbaecker K.B., Hopper J.L., Barnes D.R., Mooij T.M., Roos-Blom M.J., Jervis S., Leeuwen F.E., Milne R.L., Andrieu N., Goldgar D.E., Terry M.B., Rookus M.A., Easton D.F., Antoniou A.C., and the BRCA1 and BRCA2 Cohort Consortium. Risks of Breast, Ovarian, and Contralateral Breast Cancer for BRCA1 and BRCA2 Mutation Carriers // JAMA. – 2017. – Vol. 317(23). – P. 2402-2416. https://doi.org/10.1001/jama.2017.7112

10. Shatkovskaya O., Kajdarova D., Dushimova Z., Sagi M., Abdraxmanov R. Trends in incidence, molecular diagnostics, and treatment of patients with breast cancer in Kazakhstan, 2014-2019 // Onkologia i radiologia Kazahstana. – 2021. – No. 4(62). – P. 16-23. https://elibrary.ru/download/elibrary_47557783_55770089.pdf

11. Kumisbekova R.K., Shanazarov N.A., Bimbetov B.R., Tuleutaev M.E., Nigmetulla D.S., Zhapparov E.I. Sovremennyj vzglyad na e'pidemiologiyu raka molochnoj zhelezy: obzor literatury // Onkologiya i radiologiya Kazaxstana. – 2022. – № 3 (65). – R. 37-41 [Kumisbekova R.K., Shanazarov N.A., Bimbetov B.R., Tuleutaev M.E., Nigmetulla D.S., Zhapparov E.I. Modern view of the epidemiology of breast cancer: review literature // Oncology and radiology of Kazakhstan. - 2022. - Vol. 3 (65). - P. 37-41 (in Russ.)]. https://doi.org/10.52532/2521-6414-2022-3-65-37-41

12. Ryzhov A., Corbex M., Piñeros M., Barchuk A., Andreasyan D., Djanklich S., Ghervas V., Gretsova O., Kaidarova D., Kazanjan K., Mardanli F., Michailovich Y., Ten E., Yaumenenka A., Bray F., Znaor A. Comparison of breast cancer and cervical cancer stage distributions in ten newly independent states of the former Soviet Union: a population-based study // Lancet Oncol. – 2021. – Vol. 22(3). – P. 361-369. https://doi.org/10.1016/S1470-2045(20)30674-4

13. Barchuk A., Bespalov A., Huhtala H., Chimed T., Laricheva I., Belyaev A., Bray F., Anttila A., Auvinen A. Breast and cervical cancer incidence and mortality trends in Russia, 1980-2013 // Cancer Epidemiol. – 2018. – Vol. 55. – P. 73-80. https://doi.org/10.1016/j.canep.2018.05.008

14. Макиева К.Б., Султангазиева Б.Б., Доолоталиева Ч.С., Зайырбекова Н.А., Кайтаев М.Х. Этнические различия заболеваемости раком молочной железы женщин в Кыргызстане // Вестник КРСУ. – 2018. – №18 (6). – С. 141-144 [Makieva K.B., Sultangazieva B.B., Doolotalieva Ch.S., Zajyrbekova N.A., Kajtaev M.X. E'tnicheskie razlichiya zabolevaemosti rakom molochnoj zhelezy zhenshhin v Kyrgyzstane // Vestnik KRSU. – 2018. – №18 (6). – S.141-144 (in Russ.)]. http://vestnik.krsu.edu.kg/archive/6/17

15. Rim C.H., Lee W.J., Musaev B., Volichevich T.Y., Pazlitdinovich Z.Y., Lee H.Y., Nigmatovich T.M., Rim J.S.; Consortium of Republican Specialized Scientific Practical-Medical Center of Oncology and Radiology and South Korean Oncology Advisory Group. Comparison of Breast Cancer and Cervical Cancer in Uzbekistan and Korea: The First Report of The Uzbekistan-Korea Oncology Consortium // Medicina (Kaunas). – 2022. –№58 (10). – Art. no. 1428. https://doi.org/10.3390/medicina58101428

16. Igissinov N., Toguzbayeva A., Khamidullina Z., Telmanova Z., Bilyalova Z., Kudaibergenova I., Muratbekova S., Igissinova G., Rustemova K., Kulmirzayeva D., Syzdykov N., Taszhanov R., Turebayev D., Orazova G., Kassenova D., Detochkina V., Baibosynov D., Kuandykov Y. Epidemiology of Breast Cancer Mortality in Kazakhstan, trends and Geographic Distribution // Asian Pac. J. Cancer Prev. – 2023. – №24 (10). – P. 3361-3371. https://doi.org/10.31557/APJCP.2023.24.10.3361

АҢДАТПА

ҚАЗАҚСТАНДАҒЫ СҮТ БЕЗІ ҚАТЕРЛІ ІСІГІНІҢ ЭПИДЕМИОЛОГИЯСЫ: 2015-2024 ЖЫЛДАРДАҒЫ СЫРҚАТТАНУШЫЛЫҚ, ӨЛІМ-ЖІТІМДІ ЖӘНЕ АУРУДЫҢ САТЫЛАРЫН ТАЛДАУ

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Өзектілігі: *Сүт безі қатерлі ісігі (СБҚІ) Қазақстан Республикасындағы әйелдерде барлық қатерлі ісіктердің таралуы бойынша бірінші орында. 2015-2024 жылдар кезеңінде сырқаттанушылықтың тұрақты өсуі байқалады, бұл ретте ауру егде жастағы топтар-*

дағы әйелдерде жиі анықталады. Іске асырылып жатқан скринингтік бағдарламаларға қарамастан, СБҚІ онкологиялық өлім-жітімнің маңызды себебі болып қала береді. Алғаш рет сырқаттанушылық, өлім-жітім, кезеңділік және бес жылдық өмір сүру динамикасын бағалай отырып, СБҚІ бойынша ұлттық деректерге кешенді 10 жылдық талдау жүргізілді.

***Зерттеудің мақсаты** – ауруды ерте анықтау және емдеу жөніндегі іс-шаралардың тиімділігін бағалау мақсатында ҚР әйелдерде СБҚІ 2015-2024 жылдардағы аурушаңдық, өлім-жітім, өмір сүру және сатылық көрсеткіштеріндегі өзгерістерді талдау.*

***Әдістері:** СБҚІ бойынша аурушаңдық пен өлім-жітімнің талдауы 2015–2024 жылдар аралығында №7 және №090/У нысандары, сондай-ақ онкологиялық регистр деректері негізінде жүргізілді. Демографиялық көрсеткіштер ҚР Стратегиялық жоспарлау және реформалар агенттігінің ашық деректерінен алынды. Статистикалық өңдеу SPSS бағдарламасының (23.0 нұсқасы) көмегімен сипаттамалық статистика әдістерін қолдану арқылы жүргізілді: орташа мәндер, сенімді аралықтар және көрсеткіштердің өзгеру қарқыны есептелді.*

***Нәтижелері:** Талдау кезеңінде СБҚІ бойынша аурушаңдықтың көрсеткіші 100 000 әйелге шаққанда 45,7-ден 47,6-ға дейін өсті, ал өлім-жітім 14,2-ден 7,8-ге дейін төмендеді. Бесжылдық өмір сүру 81%-ға артып, 16 740-тен 30 267 пациентке дейін өсті. Аурудың ерте сатыларында (I–II) анықталу үлесі 81,5%-дан 88,7%-ға дейін жоғарылады, ал III сатының үлесі екі есеге жуық қысқарды. Ең жоғары аурушаңдық 65–69 жас аралығындағы топта тіркелді.*

Скринингпен қамту мен өлім-жітімнің төмендеуі арасында байланыс орнатылды. Алынған нәтижелер бұрын ұсынылған өңірлік деректерді нақтылайды және кеңейтеді және профилактикалық бағдарламаларды жетілдіру және онкологиялық көмектің тиімділігін арттыру үшін негіз бола алады.

***Қорытынды:** Қазақстанда СБҚІ аурушаңдығының тұрақты өсуі аясында өлім-жітімнің төмендеуі мен ерте диагностика деңгейінің жақсаруы байқалады. Бұл үрдістер скринингтік бағдарламалардың және онкологиялық көмектің тиімділігін көрсетеді, алайда IV сатыдағы жағдайлардың тұрақты деңгейі ерте жүгіну алдындағы кедергілерді жою қажеттігін көрсетеді.*

***Түйінді сөздер:** эпидемиология, сүт безі қатерлі ісігі, Қазақстан, аурушаңдық, өлім-жітім, өмір сүру, скрининг.*

АННОТАЦИЯ

ЭПИДЕМИОЛОГИЯ РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ В КАЗАХСТАНЕ: АНАЛИЗ ЗАБОЛЕВАЕМОСТИ, СМЕРТНОСТИ И СТАДИЙ ЗАБОЛЕВАНИЯ В 2015-2024 ГОДАХ

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***Актуальность:** Рак молочной железы (РМЖ) занимает первое место по распространённости среди всех злокачественных новообразований у женщин в Республике Казахстан. За период 2015–2024 гг. отмечается устойчивый рост заболеваемости, при этом РМЖ всё чаще выявляется у женщин старших возрастных групп. Несмотря на реализуемые скрининговые программы, РМЖ остаётся значимой причиной онкологической смертности. В данном исследовании впервые проведён комплексный 10-летний анализ национальных данных по РМЖ с оценкой динамики заболеваемости, смертности, стадийности и пятилетней выживаемости.*

***Цель исследования** – проанализировать изменения в показателях заболеваемости, смертности, выживаемости и стадийности рака молочной железы у женщин в Республике Казахстан за 2015-2024 годы с целью оценки эффективности мероприятий по раннему выявлению и лечению заболевания.*

***Методы:** Анализ заболеваемости и смертности от РМЖ в РК за период 2015-2024 гг. выполнен на основе данных форм №7 и №090/У, а также сведений онкологического реестра. Демографические показатели получены из открытых источников Агентства по стратегическому планированию и реформам РК. Статистическая обработка осуществлялась с применением SPSS (версия 23.0) с использованием методов описательной статистики, включая расчёт средних значений, доверительных интервалов и темпов изменения показателей.*

***Результаты:** За анализируемый период стандартизированный показатель заболеваемости РМЖ вырос с 45,7 до 47,6 на 100 000 женщин, в то время как смертность снизилась с 14,2 до 7,8. Пятилетняя выживаемость увеличилась на 81% – с 16 740 до 30 267 пациенток. Доля выявления на ранних стадиях (I-II) повысилась с 81,5% до 88,7%, а доля III стадии снизилась почти вдвое. Наибольшая заболеваемость отмечена в возрастной группе 65-69 лет.*

Установлена связь между охватом скринингом и снижением смертности. Полученные результаты уточняют и расширяют ранее представленные региональные данные и могут служить основой для совершенствования профилактических программ и повышения эффективности онкологической помощи.

***Заключение:** В Казахстане наблюдается устойчивый рост заболеваемости РМЖ при одновременном снижении смертности и улучшении ранней диагностики. Эти тенденции подтверждают эффективность программ скрининга и онкологической помощи, но сохраняющееся постоянство IV стадии подчёркивает необходимость устранения барьеров к раннему обращению.*

***Ключевые слова:** эпидемиология, рак молочной железы (РМЖ), Казахстан, заболеваемость, смертность, выживаемость, скрининг.*

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