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# AGE PECULIARITIES OF BREAST CANCER IN KARAGANDA REGION

**SUMMARY**

In the Republic of Kazakhstan, as in the whole world, breast cancer has the leading positions. In Karaganda region, breast cancer is 15.7% in the structure of all malignant neoplasms and 53.6% among tumors of the reproductive system of the female population. The high incidence of breast cancer falls on the able-bodied age, which demonstrates the particular urgency of this problem and dictates the need for its investigation. According to world statistics, the main age, which accounts for the peak incidence, is 45-59 years. The incidence of breast cancer is not the same depending on the national characteristics, and it often occurs in women of those nationalities, which traditionally have a limited birth rate. The study of the epidemiological features of breast cancer in Karaganda region is topical and of great interest since there are significant age differences. The purpose of this research is to study the epidemiological features of breast cancer in women of different ages in Karaganda region. Materials and methods: a retrospective epidemiological analysis of the data of patients diagnosed with breast cancer for the period 2012-2016 was conducted. Results: the main indicators of the incidence of breast cancer during the observation period in the region fall on the age of 50-59 years.

**Key words:** epidemiologists, breast cancer, age features, Karaganda region.

Throughout the world, breast cancer occupies a leading position in the structure of overall morbidity and mortality [1]. To date, malignant neoplasms of the breast are a big social problem since they are often found among the able-bodied population [2].

In the Republic of Kazakhstan, among the indicators of primary disability, oncological diseases rank second, but the problem of disability due to malignant neoplasm of the breast is not fully understood. In our country, breast cancer continues to take the leading positions and therefore over 2,5 thousand women become ill with this nosology annually. In Karaganda region, breast cancer is 15.7% in the structure of all malignant neoplasms and 53.6% among tumors of the reproductive system of the female population. The high incidence rate falls on the working age, which demonstrates the particular urgency of this problem and dictates the need for its detailed study [3].

Among the etiological factors contributing to the development of breast cancer, hormonal disorders, heredity (the presence of BRCA1 and BRCA2 associated mutations) play an important role, all kinds of inflammatory processes in the mammary glands, environmental factors (components of motor vehicle exhaust, tobacco smoke, gasoline, various kinds of solvents) [7, 8].

In developed countries, the specific gravity of breast cancer in the structure of oncological pathology is 27% [9]. However, if in 2000, the incidence of breast cancer was 25.7% of all newly diagnosed cases of malignant neoplasms in women; in 2005, this figure was already 32% in Russia [10, 11]. In the Republic of Kazakhstan, this indicator in 2010 amounted to 11.5% of all newly diagnosed malignant neoplasms, and in 2015, it increased to 12.3% [12, 13].

In breast cancer, the main peak of morbidity falls on the age of 45-59 years, while the incidence of malignant neoplasms of the other localization increases with age, reaching a maximum value by 70-80 years.

Breast cancer has a wide variation in frequency between different geographical regions. There are studies demonstrating the differences between regions with high risk in Europe, Central Asia, and Africa [4, 5]. There is a higher incidence of women living in megacities than those living in small towns and rural areas.

The incidence of breast cancer is also not the same depending on the national characteristics. For example, Asian women, African women, traditionally have a higher birth rate than European women, so they rarely have malignant neoplasms of the mammary glands. The relationship between breast cancer and diabetes and obesity has been established, and it can be concluded that the increase in the number of breast cancer patients will increase, depending on the increase in the number of patients with these nosologies [6].

Considering the tendency to the growth and diversity of etiological, ethnographic, territorial factors, the study of the epidemiological features of breast cancer in Karaganda region is no less relevant and is of great interest in science.

**The aim of the study** was to study the epidemiological features of breast cancer in women of different ages in Karaganda region.

**Materials and methods.** Retrospective epidemiological analysis of the data of the official statistical report No. 7 “Report on Patients and Diseases

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of Malignant Neoplasms" in accordance with the Code of the Republic of Kazakhstan "On the Health of People and the Health System" for the period 2012-2016. The basis for epidemiological studies was information about patients with breast cancer in Karaganda region. In all patients, the diagnosis of malignant mammary gland formation was confirmed morphologically and the stage of the disease was established by the TNM system. The data was analyzed based on methods used in oncoepidemiology. General and standardized indicators were used to analyze the dynamics and distribution of morbidity across the territory.

**Results and discussion.**

Despite the achievements in the organization of public health and practical oncology, the rates of breast cancer incidence tend to increase. For the period 2012-2016 in the region, 17,368 patients with malignant formations of various localizations were registered, of which 2,377 cases of breast cancer were detected. In the structure of the oncological morbidity of the population for the entire period of observation, the nosology studied was invariably the leading one. The absolute number of cases of malignant tumors of the breast was in 2016 (505 people), which is 12.5% higher than in 2012 (442 people). In recent years, the frequency of early diagnosis of breast cancer of the I-II stage has become much higher than 394 cases in 2016, compared with 327 cases in 2012. The indicators of the terminal stage of breast cancer decreased by 17.7% in 2016, in comparison with 2012, as well. These changes could be related to the improved screening service in polyclinics of Karaganda region. Epidemiological features of breast cancer over a five-year period depending on the stage of the disease are presented in Table 1.

There is a tendency of increased incidence in young, childbearing and working age of 30-44 years. In 2016, the number of people with breast cancer is 20% higher (8 cases), compared to 2012, when this figure was 6 cases in the 30-34 age category (Fig. 1). In the same year, the incidence rate of breast cancer at the age of 40-44 years, in comparison with 2012 (Fig.2) increased by 12.9% (39 cases). A major role in the etiology of this disease at a young age is played by factors that arise when the reproductive system of the body is disturbed a violation of menstrual, sexual, genital, lactational, genetic function. Unfortunately, in view of the lack of additional information about the history of the disease (the onset of menarche, sexual activity, the presence or absence of labor, etc.), it is not possible to provide a more detailed epidemiological picture.

**Table 1: Incidence of breast cancer in the period from 2012-2016 in Karaganda region, the dynamics of stages of the tumor process.**

| Follow-up period of | Patients with first-established diagnosis | Stage I-II disease I-II | Stage III disease III | Stage IV disease IV | Diagnosis not confirmed |
|---|---|---|---|---|---|
| 2012 | 442 | 327 | 81 | 34 | - |
| 2013 | 444 | 326 | 97 | 21 | - |
| 2014 | 414 | 343 | 48 | 23 | 1 |
| 2015 | 462 | 364 | 65 | 33 | 3 |
| 2016 | 505 | 394 | 80 | 28 | - |

**Table 2 shows the data according to the age of the patients.**

| Period of observation | Age of patients | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| In years | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-79 | 80-84 | 85+ |
| 2012 | 1 | 4 | 6 | 14 | 34 | 50 | 66 | 68 | 63 | 30 | 64 | 22 | 15 | 6 |
| 2013 | 1 | 2 | 5 | 12 | 34 | 41 | 69 | 74 | 72 | 37 | 52 | 28 | 11 | 12 |
| 2014 | 1 | - | 8 | 22 | 19 | 42 | 68 | 61 | 67 | 54 | 36 | 29 | 8 | 3 |
| 2015 | - | 1 | 6 | 23 | 28 | 45 | 64 | 69 | 73 | 61 | 38 | 43 | 9 | 10 |
| 2016 | - | 5 | 8 | 18 | 39 | 45 | 79 | 81 | 63 | 69 | 40 | 40 | 18 | 6 |

Table 2. Age features of breast cancer for a 5-year period in Karaganda region.

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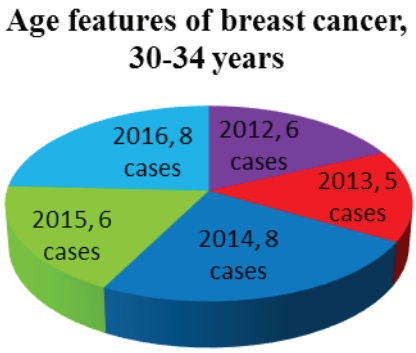


**Fig.1. The incidence of breast cancer at the age of 30-34 years for the 5-year period in Karaganda region.**

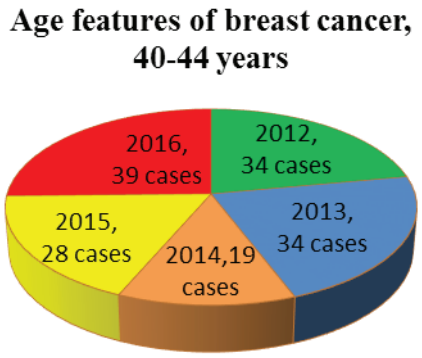


**Fig.2. Incidence of breast cancer at the age of 40-44 years for a 5-year period in Karaganda region.**

The main indicators of the incidence of breast cancer in the region fall on the age of 50-59 years and the incidence of cases in 2016 is 16% (81 patients) higher than the same figure in 2012 (Fig. 3).

There is also an increase in breast cancer cases in the age range of 65-69 years and 75-79 years and the relative stability in incidence rates over the age of 80 years. (Fig. 4).

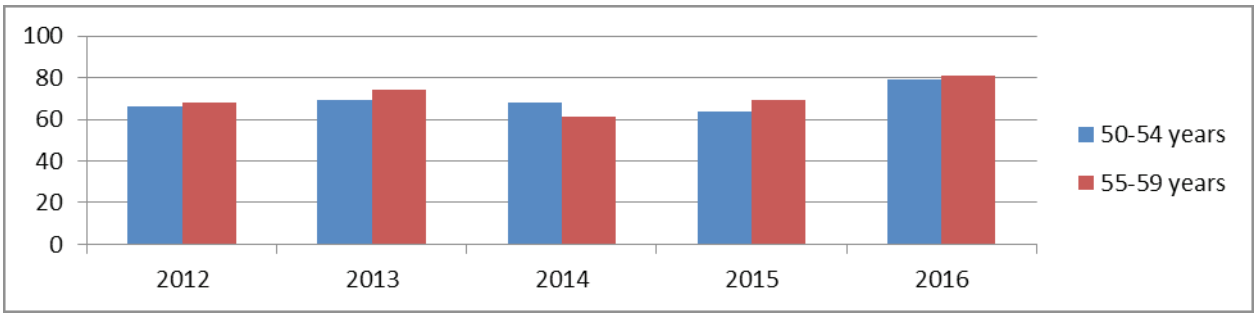


**Fig.3. The incidence of breast cancer at the age of 50-59 years for a 5-year period in Karaganda region.**

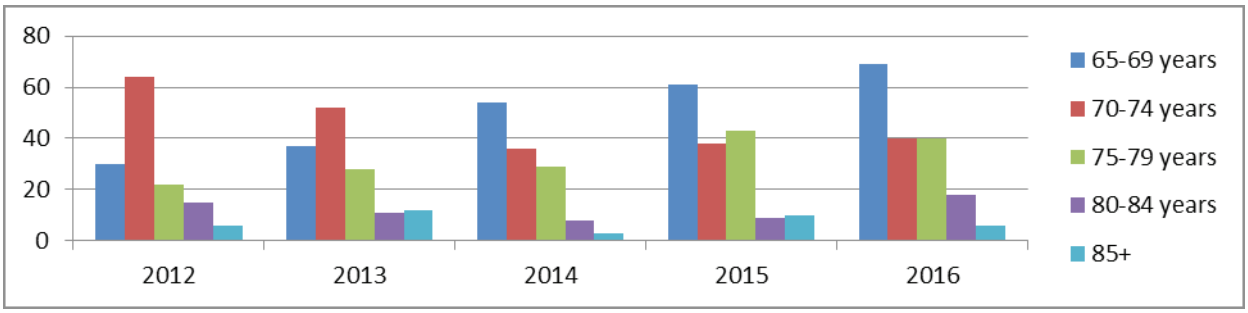


**Fig.4. Incidence of breast cancer at the age of 65-85 years for a 5-year period in Karaganda region.**

**Conclusion.**

1. In the structure of cancer incidence of women in Karaganda region, breast cancer ranks first.

2. In the region, high rates of detection of breast tumors at early stages of the tumor process were recorded. In 2016, breast cancer was diagnosed at stage I-II in 78% of patients.

3. For the period under study in Karaganda region, the consistently high prevalence

rates of breast cancer were noted, due to the survival of this category of patients, the early detection and, accordingly, the successful treatment of malignant breast tumors.

4. The main indicators of the incidence of breast cancer during the observation period in the region fall on the age of 50-59 years and the incidence of cases detected in 2016 is 16% higher than the same figure in 2012.

5. The increase in breast cancer cases in the age range of 65-69 years and 75-79 years and the relative stability in morbidity rates over the age of 80 years have been revealed.

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**ТҮЙІНДІ**

Бүкіл әлемдегі сияқты Қазақстан Республикасында сүт безінің қатерлі ісік ауруы кең таралған. Қарағанды облысында сүт безінің қатерлі ісігі барлық қатерлі ісіктердің ішінде 15,7% және әйелдердің репродуктивті жүйесі ісіктерінің 53,6% құрайды. Сүт безінің қатерлі ісігі еңбекке қабілетті жастағы әйелдерде көптеп байқалады, бұл осы мәселенің өзектілігін және оны зерттеу қажеттігін көрсетеді. Әлемдік статистикаға сүйенсек, аурудың таралуының ең жоғарғы деңгейі 45-59 жас аралығында. Сүт безінің қатерлі ісік ауруы ұлттық ерекшеліктерге байланысты таралуы бірдей емес, туу көрсеткіші төмен этникалық топтарда жиі кездеседі. Қарағанды облысында сүт безінің қатерлі ісігімен ауыратын науқастарда айтарлықтай жас айырмашылықтары бар, сондықтан оның эпидемиологиясын зерттеу өзекті мәселе болғандықтан үлкен қызығушылық тудырады. Зерттеудің мақсаты - Қарағанды облысындағы әртүрлі жастағы әйелдердің сүт безі қатерлі ісігінің эпидемиологиялық ерекшеліктерін зерттеу.

Материалдар мен әдістер. 2012-2016 жж. кезеңіндегі сүт безінің қатерлі ісігі диагнозы анықталған науқастарға ретроспективті эпидемиологиялық талдау жасалынды. Нәтижелері. Облыстағы сүт безінің қатерлі ісік ауруы таралуының негізгі көрсеткіштері 50-59 жас аралығына сәйкес келеді.

**Кілт сөздер:** эпидемиологтар, сүт безінің қатерлі ісігі, жас ерекшеліктері, Қарағанды облысы.

**АННОТАЦИЯ**

В Республике Казахстан, как и во всем мире, рак молочной железы возглавляет ведущие позиции. В Карагандинской области рак молочной железы составляет 15,7% в структуре всех злокачественных новообразований и 53,6% среди опухолей репродуктивной системы женского населения. Высокая частота заболеваемости раком молочной железы приходится на трудоспособный возраст, что демонстрирует особую актуальность данной проблемы и диктует необходимость ее исследования. Согласно данным мировой статистики основным возрастом, на который приходится пик заболеваемости, является 45-59 лет. Заболеваемость раком молочной железы не одинакова в зависимости от национальных особенностей, а так он чаще возникает у женщин тех национальностей, у которых традиционно ограничена рождаемость. Исследование эпидемиологических особенностей рака молочной железы в Карагандинской области является актуальным и представляет собой большой интерес, поскольку имеются значительные возрастные различия. Цель данного исследования - изучение эпидемиологических особенностей рака молочной железы у разновозрастных женщин Карагандинской области.

Материалы и методы. Проведен ретроспективный эпидемиологический анализ данных пациентов с диагнозом рак молочной железы за период 2012-2016гг.

Результаты. Основные показатели заболеваемости раком молочной железы за период наблюдения в области приходятся на возраст 50-59 лет.

**Ключевые слова:** эпидемиология, рак молочной железы, возрастные особенности, Карагандинская область.

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