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Peculiarities of breast cancer incidence rate in urban population and implementation of screening programs in health care system

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ABSTRACT

Introduction: In the structure of illnesses connected with malignant tumors (MT) among women's population of Ukraine breast cancer (BC) holds a leading position and was at the level of 19.3% in 2014.

The aim: The aim of research is a comparative analysis of BC illnesses among women's population in regional centers of Prydniprovsk-Donetsk which is an intensive industrial zone (Dnipropetrovsk city) and Transcarpathian region, clean natural area (Uzhgorod city). The latter belongs to a recreational area because of its natural and climatic features. Also, the aim is to estimate an influence of screening program implementation on mortality of women from BC within one year period from diagnosis date.

Object and methods: We have used data of state statistics records as per F-7 and F-35 forms, which were received while processing the primary medical documentation (№ 090/o, № 027-1/o and № 30-6/o). The said was carried out by means of regional branches of National Cancer Register of Ukraine. Rough indexes of BC incidence rate and part of lethal outcomes among BC patients before one year after diagnosis in regional centers were considered.

Results: A considerable increase of incidence rate of BC has been detected in administrative centers of both regions. This incidence rate has reached 90 cases out of 100,000 female population. Substantial change in gender behavior due to influence of urban surrounding is a possible factor of high BC incidence rate of urban population.

Conclusions: Mammography screening implementation contributes to general and annual decrease of BC mortality among women's population.

Key words: breast cancer, incidence rate, screening, gender behavior.

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INTRODUCTION

Breast cancer (BC) in Ukraine stands on the first place among women's illnesses connected with malignant tumors and mortality with a share of 19.3% and 20.1% respectively according to data as of 2014 [10]. An increasing tendency of BC incidence rate based on geographic vector has been noticed in Ukraine: from West to East and from North to South. At the some time, there are peculiarities in BC illnesses within a separate region - among other, difference in incidence rate between rural and urban population. Such differences in breast cancer incidence rate due to residential environment (urban/rural) and socioeconomic status of populations have already been previously described in USA [3, 7]. At that, it is possible to trace symmetric trends of BC incidence rate among urban population of regional centers which are geographically distant.

The leading position of BC in the structure of cancer morbidity and mortality among women's population in Ukraine has changed from a pure medical problem into a complex medical-social one. Only a timely diagnostics of BC on I-II stages can provide a favourable prognosis. Screening programs for BC detection have been proved to be reasonable on the worldwide scale for a risk group determined by age criteria in the first place [8]. The leading diagnostic method is an X-ray mammography [2, 6].

THE AIM OF RESEARCH

The aim of the research is a comparative analysis of BC incidence rate in women's population between administrative centers of Prydniprovsk-Donetsk region which are intensive industrial area (Dnipropetrovsk city) and Transcarpathian region (Uzhgorod city) which belongs to a recreational area according to climate and nature conditions. Also, the aim is to estimate an influence of screening programs implementation on a lethal outcomes among BC patients before one year after diagnosis date.

OBJECT AND METHODS

We have used the data of the state statistics records of forms F-7 and F-35, which were received while processing the primary medical documentation (№ 090/o, № 027-1/o and № 30-6/o). The said was carried out by means of regional branches of National Cancer Register of Ukraine [6]. Rough indexes of BC incidence rate and part of lethal outcomes among BC patients before one year after diagnosis in the regional centers were taken into consideration. These data were compared to generalized indices of BC incidence rate of particular regions of the same years. We haven't estimated the effectiveness of mammography screening implementation as per "has been detected on preventive examination" item due to its subjective and certain manipulative nature.

RESULTS AND DISCUSSION

Epidemic situation of BC in the said regional centers is unfavorably steady if to compare it with corresponding regional figures during a long period of time. In the first place it concerns BC incidence rate among women's population of the said cities which is 18-41% higher than the regional incidence rate of the same year. As an example we show the dynamics of the specific rate in the Transcarpathian region and Uzhgorod. The average year rate of BC in the regional center during 2010-2014 is 77, 3 cases out of 100 thousand of women's population. In the same time the overall regional rate was 41.4% lower and equaled to 45.3 among 100 thousand of women's population. The highest level was registered in Uzhgorod in 2012 – 94.2 cases of BC among 100 thousands of women's population which is close to the same rate of the countries of Central and Western Europe (Fig.1).

Symmetric tendencies were detected in Dnipropetrovsk region and in its center – Dnipropetrovsk city during 2003-2007. Average annual BC incidence rate in the center was 84.9 out of 100 thousand women, while the index in whole Dnipropetrovsk region was 17.6% lower – 70.0 out of 100 thousand women. The highest BC incidence rate indexes in Dnipropetrovsk were above 90-91 cases out of 100 thousand among women's population in 2004-2005. Thus, the increased level of BC incidence rate among women's population in regional centers, which are 1300 km away each from other does not depend on the technological activities which influence the environment.

In our view point, tendencies towards increase of BC incidence rate among women's population in cities, especially megapolis depend on summation of substantial number of factors connected with a change in gender behavior during the process of urbanization. The factors mentioned above are as follows: postponing of the first pregnancy and childbirth for the older age, limiting the number of childbirth, abortions, irrational contraception, breast feeding refusals as well as widespread smoking among women. Among others, all these risk factors of BC growth were mentioned in reviews of the last years [1].

High level of BC incidence rate and its leading position in Ukraine's structure of cancer among woman motivates elaboration and practical implementation of screening programs into health care system. The main method of BC screening according to standards of such leading oncology foundations as ASCO and ESMO is X-ray mammography [9]. The only disputed question is about is the frequency of such examinations [4]. In accordance with data of M.J.Emaus et al. (2014) there are some differences between urban and rural populations even in this field. The density of breast in mammography images were higher in urban women [5].

Necessity of widespread implementation of particular diagnostic technology is established in such normative acts as the State Program "Reproductive Health of the Nation" for the period of 2015 year approved by Ukraine's CM regulation dated 27.05.2006 #1849 and "Nationwide Campaign Against Onco-sicknesses Till 2016", adopted by Verkhovna Rada of Ukraine on 23.12.2009 # 1794-VI and departmental documents of Health Care Ministry of Ukraine, in particular in the Decree # 676 as of 31.12.2004 "Clinical Protocols Confirmation from Obstetrical and Gynecological Help".

It is obvious that existing material and technical basis (park of mammographic equipment, provision of the consumable materials, staff) – do not correspond to the requirements of total mammographic screening (maximal coverage of women's population aged 40 and older). There are difficulties in motivating women to take part in the screening programs especially among so

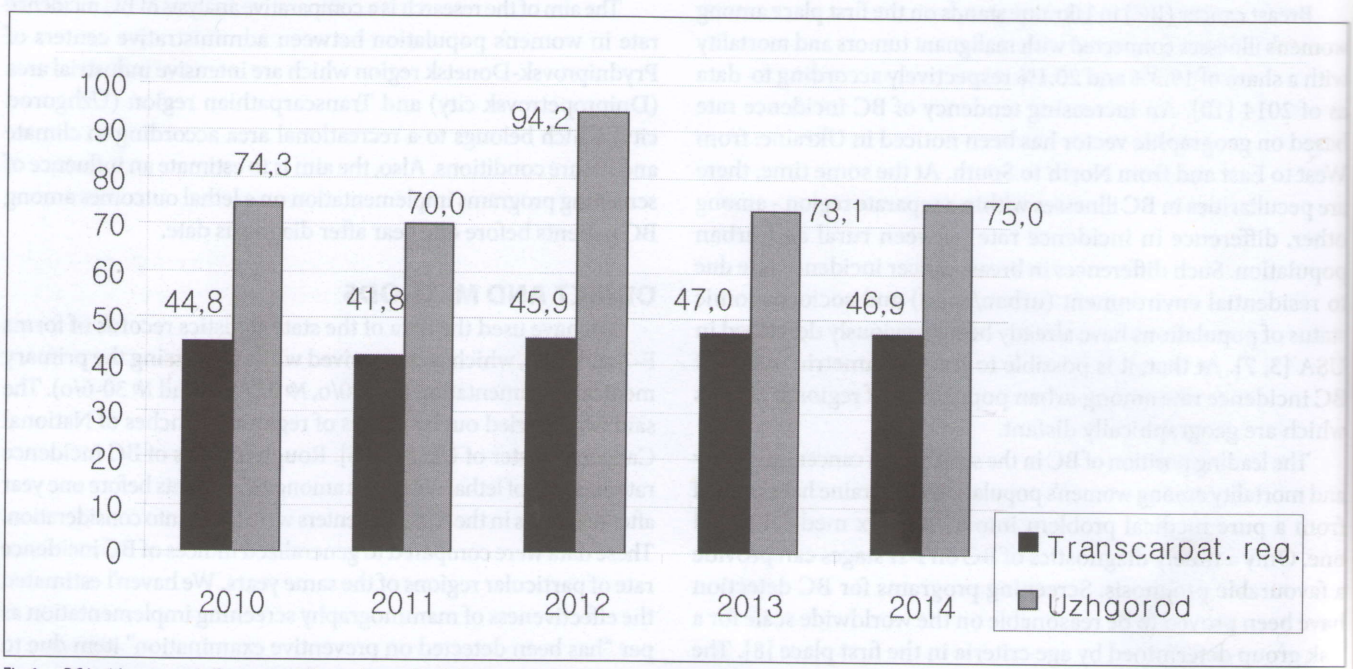

Fig.1. BC incidence rate in Transcarpathian region and in Uzhgorod (2010-2014, as per 100,000 female population).

called 'disorganized' part of population. However, the fulfillment of early BC detection program with usage of mammographic screening in Dnipropetrovsk city began in 2003. It was carried out among 'organized' women's groups and showed positive results. The BC mortality rate within a period from 0 to 1 year after diagnosis date reflects problems in a timely diagnostics of cancer in the most objective way. This rate had decreased from 12.7 to 6.8% within a short period of time from 2003 to 2007 and stabilized within the limits of 7-8% thereafter.

CONCLUSION

1. It has been registered that the level of BC incidence rate among women's population in regional centers exceeds the average regional level in geographically distant regions of Ukraine.
2. The most probable factor of BC incidence rate increase among urban women's population appears to be change of gender behavior in the process of urbanization.
3. The implementation of mammographic screening programs helps to detect BC on early stages which increases possibilities of radical treatment, decreases the level of general and earlier (before one year) mortality from BC.

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