

ORIGINAL ARTICLE

The importance of quality control in the implementation of breast cancer screening program in the Health Center Zemun

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Summary

Purpose: To investigate whether the differences in implementation between opportunistic and organized breast cancer screening affect the results, as well as the significance of quality control during the implementation of organized breast cancer screening.

Methods: Testing was performed in 2013 (opportunistic screening) and 2014 (organized screening) in the Health Centre Zemun. This included female population aged 50-69 years, belonging to the target population according to the national breast cancer screening programs. The Health Centre Zemun database of insured patients from the National Health Insurance Fund of the municipality of Zemun and Surcin was used for the evaluation of the screening performance. Statistical data processing was done with the statistical package SPSS-20.0.

Results: There was a highly significant difference ($p=0.000$)

in the implementation of opportunistic and organized screening, whereby the response of women in organized screening was much greater (11.48%) than of the women responding to opportunistic screening (0.27%). The low response of women noticed in the summer in organized screening was attributed to the fact that the majority of women in Serbia take their holidays in that period.

Conclusion: Performance and quality of screening depends on the control of all segments of the activities carried out in the screening process. Previous experience in organizing and controlling the quality of the implementation of screening can serve as a proven model, which by a multidisciplinary approach in practice can provide a better and safer healthcare.

Key words: breast cancer, female population, quality control, screening program

Introduction

Breast cancer is the leading cause of death among women worldwide, Serbia being no exception. A systematic analysis of data from cancer registries of 187 countries including Serbia, showed that the incidence of the disease has been growing continuously for 30 years [1,2]. The incidence of breast cancer in Western countries has shown a dramatic decrease, especially in women over 50 years of age, which is partly attributed to earlier disease detection, or to the effects of organized screening. Breast cancer mortality shows

a trend of decline in the US and developed countries [3,4]. In Europe, mortality rates vary greatly, ranging from reduction of 30% in England, to increase by 25% in Estonia [5,6]. In Serbia, 26% of all patients and 17.5% of all deaths due to malignant tumors in women are ascribed to breast cancer [7]. Control in the implementation of targeted screening is an important factor affecting the implementation of screening programs.

In this study we investigated whether the differences in implementation of opportunistic and

organized breast cancer screening affect the results, as well as the significance of quality control during the implementation of organized breast cancer screening.

Methods

Breast cancer screening was done in 2013 (opportunistic screening) and in 2014 (organized screening) in the Health Centre Zemun. Both screenings included female population aged 50-69 years, belonging to target population according to the breast cancer screening program [8]. After clinical breast examination all responders underwent mammography. If needed, suspect results on mammography were further clarified by additional diagnostics. To calculate the percentage of performed screening, the databases of the Health Centre Zemun and the National Health Insurance Fund (RFZO) of the municipality of Zemun and Surcin were used.

Statistics

To examine the differences between the groups the Student's t-test was used for large independent samples, with accepted level of significance $p < 0.05$. The arithmetic mean with the corresponding standard deviation was used as part of the descriptive statistics. Statistical analysis was done with the statistical package SPSS -20.0.

Results

Out of the planned 10,500 women in opportunistic screening, the screening was realized with 84 women (0.27%). Out of 29 women, who were referred for additional diagnostics, only one had confirmed breast cancer diagnosis. In the organized screening of 10,500 planned, 1,205 responded to the invitation (11.48%). Out of 24 women who were suspected and sent to additional diagnostics, 2 had confirmed breast cancer (Table 1).

Throughout the year of testing the implementation of these two types of screening, the turnout of women in organized screening was significantly (11.48%) higher than that of opportunistic screening (0.27%) ($p = 0.000$) (Figure 1 and Table 1). Only during the summer months, July in

particular, a low turnout of women in organized screening was recorded (Figure 1).

Discussion

Carcinoma of the breast is the most prevalent cancer in Serbian women. Every year about 4,000 new cases of this disease are being registered, representing more than a quarter of all malignant diseases in Serbian women. These data indicate that Serbia must organize breast cancer screening at National level. The results of opportunistic screening, which has long been conducted in Serbia, were disappointing. Thanks to the organized programs of early breast cancer detection (screening) and the timely implementation of appropriate treatment, a significant decrease in mortality from this disease [9,10] has been recorded in most developed countries during the last decade.

According to the recommendations of international professional associations, using the experience of other countries [11,12], and after analysing the epidemiological situation of breast cancer in Serbia, a National program of screening for breast cancer has been devised and implemented since 2014 [8]. Organized screening is based on mass invitation to target population for screening mammograms and interpretation of the images, accompanied by quality control and reporting [13-15]. For monitoring and evaluating the implementation of screening, it is essential to have an overview of all aspects, from checking the quality of work, to professional, legal and socio-economic aspects.

Based on the European guidelines for the quality control of screening, the control of all phases of screening is conducted by inviting the target population, evaluating the quality of mammograms, interpreting mammography, inspecting the supervisors' work and by training the team that participates in the implementation of screening [16-18]. The guidelines for screening quality control were updated in 1993 when the gold standard in screening was adopted, referring to the mammography examination, which contribut-

Table 1. Implementation of breast cancer screening

Screening for breast cancer in Health Centre Zemun	Planned coverage of women annually	Implemented screening	Implemented screening in %	Number of women referred to additional diagnosis	Number of women with established diagnosis of breast cancer
Opportunistic screening (2013)	10500	84	0.27	29	1
Organized screening (2014)	10500	1205	11.48	24	2

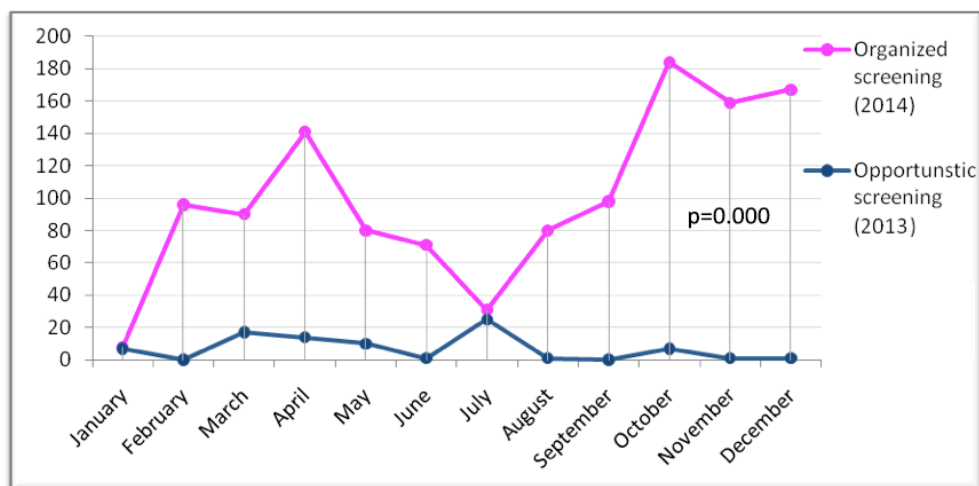


Figure 1. Dynamics of mammography performed by month.

ed largely to the prevention and early detection of breast cancer [19-21].

Quality control means daily, weekly, monthly, semi-annually and annually control, using methods that have been provided in the Program [22,23]. Monitoring the implementation and quality control of all components of the program is planned and implemented by the Office for breast cancer screening in cooperation with the State Expert Committee for breast cancer. The control is being conducted using the database, the screening programs implementation indicators and periodic reports of the Institute of Public Health that show activity in the field of screening programs. Their evaluation is performed on the basis of the indicators and periodic expert inspection of the institutions that participate in the screening program.

At the Health Centre Zemun, the program of early detection of breast cancer is conducted by organizing mammographic screening in healthy women aged 50 to 69 in a cycle of 2 years. The results of studies carried out in this institution showed that the percentage of mammograms

performed through organized screening was significantly higher than the percentage in opportunistic screening, and that the dynamics of the response of the women to mammography in organized screening is on the rise. These are encouraging results, because detection of breast cancer at an early stage, in addition to the high chance of cure, also enables application of breast-sparing surgery, faster recovery, reduced disability, better quality of life as well as reduction in the costs of treatment and indirect costs of illness [24].

Performance and the quality of screening depend on the control of all segments of the activities carried out in screening. All previous experience in organizing and controlling the quality of the screening implementation can serve as a proven model that can provide a better and safer healthcare.

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