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National Program of Breast Cancer Early Detection in Brod-Posavina County (East Croatia)

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A B S T R A C T

Results of the National Program of Breast Cancer Early Detection in Brod-Posavina County during the 2006–2012 period are presented. Response rate in two National Program cycles, cancers detected according to factors such as first and last menstruation, age at cancer detection, deliveries and mammography findings according to the Breast Imaging Reporting and Data System (BI-RADS) before diagnosis verification were analyzed. Data were obtained from the software connecting Public Health Institutes via Ministry of Health server and questionnaires filled out by the women presenting for screening and processed by the method of descriptive statistics. Mammography findings were classified according to the BI-RADS classification. In two National Program cycles during the 2006–2012 period, women aged 50–69 were called for mammography screening. In the first cycle, the response rate in Brod-Posavina County was 53.2%, with 71 cancers detected at a mean age of 61.3 years. In the second cycle, the response rate was 57.0%, with 44 cancers detected at a mean age of 62.5 years. In the first and second cycles, there were 21.1% and 14.3% of mammography findings requiring additional work-up (BI-RADS 0), respectively. Particular risk factors such as early menarche, late menopause, parity, positive family history and presence of benign breast lesions were not demonstrated in women with verified cancer. There was no increase in the incidence of breast cancer per 100,000 inhabitants in the Brod-Posavina County following implementation of the National Program. In conclusion, efforts should be focused on increasing public health awareness, ensuring appropriate professional staff engaged in screening, and improving medical care in order to reduce the time elapsed from establishing suspicion to confirming the diagnosis of breast cancer.

***Key words**: breast neoplasms, women, incidence, mortality, mass screening, mammography, implementation, public health, response rate, menopause*

Introduction

Breast cancer is the most common malignant tumor and the leading cause of cancer death in women in Europe[1–4]. Incidence rates were much higher in more developed countries compared to less developed countries (71.7/100,000 and 29.3/100,000, respectively, adjusted to the World 2000 Standard Population), whereas the corresponding mortality rates were 17.1/100,000 and 11.8/100,000[5]. The last three decades have yielded marked progress in the diagnosis and management of breast cancer. Not only is the disease being detected at a much earlier stage, but the addition of systemic therapy has also improved survival[6]. In Croatia, breast is also the most common seat of carcinoma in women. In 2010, the age-standardized breast cancer incidence and mortality rates (standardized for European population) were 81.3 and 27.4, respectively[7]. The incidence trends of breast, endometrial and ovarian cancers in Croatia 1988–2008 were similar to the trends observed in most European countries, while a modest decline in the incidence of cervical cancer and the lack of decline in breast cancer mortality suggest suboptimal cancer prevention and control[8]. In Croatia, the breast cancer age-standardized incidence rates are comparable to those recorded in the surrounding countries and considerably lower than those reported from industrialized European countries. In 2006, the breast cancer age-standardized incidence rate was 79.4 in Croatia, 79.0 in Bosnia and Herzegovina, 69.2 in Serbia and 87.5 in Slovenia versus 126.5 in Switzerland, 122.2 in Great Britain and 121.2 in Germany. On the other hand, the standardized mortality rate (*per* 100,000

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European population) did not show such great differences according to the level of industrialization (Croatia 26.3, Bosnia and Herzegovina 23.5, Serbia 23.0, Slovenia 28.6, Switzerland 22.8, Great Britain 27.3 and Germany 26.5)[1]. In Croatia, 2473 new cases of breast cancer were registered in 2008 and 902 deaths from breast cancer in 2009, making breast cancer the most common cause of cancer death in women. There is constant increase in the incidence and mortality of breast cancer in Croatia, however, with stabilization of the mortality trend in recent years[9]. Resolution on Cancer Prevention and Control adopted by the World Health Organization points to the need of developing and implementing national programs (NP) of cancer detection. National programs of cancer detection are public health projects aimed at reducing the number of individuals affected with and dying from cancer, and at improving the quality of life of cancer patients by systematic and even implementation of evidence-based strategy through optimal utilization of the resources available[10]. Therefore, implementation of the National Program of Breast Cancer Early Detection, known as Mamma, carried out in Croatia since 2006, is of utmost public health importance.

Aim

The aim of this report is to present results of the National Program of Breast Cancer Early Detection (NP) in Brod-Posavina County (County) during the 2006–2012 period. Response rate in two NP cycles, cancers detected according to factors such as age at first and last menstruation, deliveries, age cancer detection, and mammography according to the Breast Imaging Reporting and Data System (BI-RADS) classification before diagnosis verification.

Materials and Methods

In the County, the National Program of Breast Cancer Early Detection (NP) has been conducted by a public health team from Department of Public Health, Mental Health Care, Prevention and Outpatient Treatment of Dependencies of the County Public Health Institute. The team consists of a physician and a nurse, with the physician coordinating NP performance throughout the County. In the County, there are two mammography units: one at Department of Radiology, General Hospital »Dr Josip Benčević« in Slavonski Brod and the other at General Hospital in Nova Gradiška. The physicians in radiology units have been authorized by the Commission for Organization, Surveillance and Quality Control of the National Program of Breast Cancer Early Detection to interpret mammography findings and enter them into the respective software using their access code. Appropriate quality control requires duplicate independent image interpretation[10]. Radiologists performing mammography have also been appointed for the needs of NP. Concerning mammography devices, General Hospital in Slavonski Brod has a GE-PERFORMA-STEREO from 2007, while General Hospital in Nova Gradiška has a 10-year-old Siemens Mammomat 1000. Upon receiving envelopes with inviting letters and educational leaflets from the Ministry of Health, the public health team makes a list of women to call for examination and set the screening dates in collaboration with the radiology unit. Thus, every woman of the above mentioned age group receives the inviting letter with the date of mammography screening, educational material and a sort of referral slip. Any additional information, change of mammography date, etc. are available at the Public Health Institute free telephone number. All data collected are entered in the program to update the list of women anticipated for calling for mammography screening. Based on the 2001 census, at starting the NP (cycle 1), there were 26,419 women aged 50–69 to be called for screening in the County. In NP cycle 2 performed after 2–3 years, the number of women was reduced by updating the registry, which included changing the place of residence, deaths, women diagnosed with breast cancer, women at an increased risk and already under medical treatment, etc.; thus, 25,022 women were eligible for calling to screening in NP cycle 2. Women born in 1937 to 1958 were invited from the end of 2006 to 2009, but not by years in order. Those born in 1937 were invited first. In cycle 2, women were re-invited by the same order, whereby the women having reached 70 were not included anymore, while those having reached 50 entered the program. Re-inviting the same women for screening after 2–3 years was completed at the end of 2011.

In addition, members of the public health team collected data on women diagnosed with breast cancer from all resources available (records forms, statistical forms, findings and all information on additional diagnostic work-up and therapy for a particular woman) and entered them in the program carcinoma base. Results were analyzed using the software connecting all public health institutes with the Ministry of Health server. The software offers Reports on the National Program of Breast Cancer Early Detection implementation and BI-RADS List by Mammography Units. Questionnaires filled-out by each woman on presenting for screening were also included in the analysis. The mean and standard deviation were calculated for numerical parameters. The response rate in Slavonski Brod, Nova Gradiška and County as a whole was calculated from the above mentioned Report by counting up all women that failed to present for screening for any reason and calculating their percentage of all women invited. On presenting for screening, the women present the questionnaire containing data that may influence carcinoma development. The analysis included the risk factors stated in the questionnaire, i.e. data on menarche, age at last menstruation, family history, benign breast lesions and number of deliveries.

Results

In NP cycle 1, all anticipated women (N=26,419) were invited for screening in the County, with a response rate of 53.2%, 71 cases of breast cancer detected and veri-

fied, and rate of newly detected breast cancer *per* 1000 screened women of 5.7 for all age groups. In Slavonski Brod, the response rate was 55.2% and in Nova Gradiška 51.2%. The response rate varied according to age groups, being highest in the oldest age group of ≥70 (56.5%), followed by the 60–64 age group (54.8%). In cycle 2, all anticipated women were re-invited (N=25,022). The County response rate was 57.0%, with 44 new cases of breast cancer detected and verified, and the rate of newly detected cases *per* 1000 screened women of 3.9. The response rate in Slavonski Brod and Nova Gradiška was 56.5% and 57.5%, respectively. The response rate varied again according to age groups, being highest in the oldest age groups of 65–69 (59.5%) and ≥70 (63.8%). In cycle 1, the highest percentage of women with verified breast cancer was found in the 65–69 age group (32.4%), with the mean age at cancer detection of 61.3. In cycle 2, the highest percentage of women with verified breast cancer was found in the 50–54 age group (29.5%), with the mean age at cancer detection of 62.5 (Table 1).

In cycle 1, 14,021 women failed to respond to the call for screening in the County; 9781 (69.8%) of them provided no explanation for it. There were 1835 incorrect addresses and 214 women temporarily living elsewhere. In cycle 2, 13,799 women failed to respond to the call for screening in the County; 82.4% of them provided no explanation, while incorrect addresses or living elsewhere were the causes in 9.8% of cases; 330 women had died, 82 of them with carcinoma (Table 2).

In the BI-RADS List by Mammography Units report, 12,406 mammography findings were analyzed for the County in cycle 1, with 21.1% of these requiring additional work-up; 33.1% of normal findings; 40% of benign findings requiring no additional work-up; 4.9% of probably benign findings with recommended follow up in 6 months; 0.8% of suspect lesions; and 0.06% of highly suspect malignant lesions. In cycle 2, 11,223 mammography findings were analyzed for the County as a whole, with 14.3% of findings requiring additional work-up; 26.5% of normal findings; 46.4% of benign findings; 11.7% of probably benign findings; 1.1% of suspect lesions; and 0.03% of highly suspect malignant lesions (Table 3).

The age at first menstruation was analyzed from the questionnaires filled-out by the women. In cycle 1 and cy-

TABLE 1
THE RESPONSE RATE AND NUMBER OF CARCINOMA DETECTION ACCORDING THE AGE GROUPS

Age groups	Slavonski Brod				Nova Gradiška				County			
	Cycle 1		Cycle 2		Cycle 1		Cycle 2		Cycle 1		Cycle 2	
	RR – (%)	BC	RR – (%)	BC	RR – (%)	BC	RR – (%)	BC	RR – (%)	BC	RR – (%)	BC
50–54	48.4	11	51.4	7	45.2	6	49.8	3	46.8	17	50.6	10
55–59	54.0	7	53.5	6	54.2	8	57.6	6	54.1	15	55.6	12
60–64	54.7	8	54.2	6	54.9	3	56.8	2	54.8	11	55.5	8
65–69	57.9	12	59.7	7	49.7	5	59.2	3	53.8	17	59.5	10
≥70	60.8	10	63.7	4	52.1	1	64.1	0	56.5	11	63.8	4
Total	55.2	48	56.5	30	51.2	23	57.5	14	53.3	71	57.0	44

RR – response rate, BC – breast carcinoma

TABLE 2
REASON OF FAILED TO RESPOND TO THE CALL FOR SCREENING

Reasons	Slavonski Brod				Nova Gradiška				County			
	Cycle 1		Cycle 2		Cycle 1		Cycle 2		Cycle 1		Cycle 2	
	N	%	N	%	N	%	N	%	N	%	N	%
Change of date + absence	40	0.4	33	0.3	14	0.3	17	0.4	54	0.4	50	0.4
Examined before 12 months	760	7.7	408	4.2	345	8.3	163	3.9	1105	7.9	571	4.1
Already diagnosed	153	1.6	57	0.6	90	2.2	25	0.6	243	1.7	82	0.5
Other reasons	69	0.7	23	0.2	27	0.6	3	0.1	96	0.7	26	0.2
Do not want	92	0.9	15	0.2	69	1.7	10	0.2	161	1.1	25	0.2
Deceased	368	3.7	247	2.6	164	3.9	83	2.0	532	3.8	330	2.4
Failed to call / no explanation	7248	73.6	8023	83.5	2533	60.7	3341	79.7	9781	69.8	11364	82.4
Incorrect addresses	1000	10.2	717	7.5	835	20.0	521	12.4	1835	13.1	1238	9.0
Temporary living elsewhere	116	1.2	82	0.9	98	2.3	31	0.7	214	1.5	113	0.8
Total	9846	100.0	9605	100.0	4175	100.0	4194	100.0	14021	100.0	13799	100.0

TABLE 3
MAMMOGRAPHY FINDINGS ACCORDING TO BI-RADS CLASSIFICATION

BI-RADS	Slavonski Brod				Nova Gradiška				County			
	Cycle 1		Cycle 2		Cycle 1		Cycle 2		Cycle 1		Cycle 2	
	N	%	N	%	N	%	N	%	N	%	N	%
0	2572	30.7	1545	19.5	47	1.2	58	1.8	2619	21.1	1603	14.3
1	2568	30.7	2047	25.8	1539	38.2	931	28.2	4107	33.1	2978	26.5
2	2707	32.3	3212	40.5	2256	56.0	1994	60.5	4963	40.0	5206	46.4
3	456	5.4	1026	12.9	159	3.9	285	8.6	615	4.9	1311	11.6
4	71	0.8	96	1.2	23	0.6	26	0.8	94	0.8	122	1.1
5	3	0.1	1	0.1	5	0.1	2	0.1	8	0.1	3	0.1
Total	8377	100.0	7927	100.0	4029	100.0	3296	100.0	12406	100.0	11223	100.0

cle 2, the mean age at first menstruation was 13.7 and 13.5 years, and the mean age at last menstruation 49.4 and 50.0 years, respectively. The mean number of deliveries was 2.3 in cycle 1 and 2.2 in cycle 2. In cycle 1 and cycle 2, the mean age at carcinoma detection was 61.2 and 61.1 years, respectively (Table 4a). Positive family history was recorded in 7 women diagnosed with carcinoma in cycle 1 and 6 women in cycle 2, while 22 women in cycle 1 and 10 women in cycle 2 mentioned benign breast lesions in their personal history (Table 4b).

TABLE 4 A
RISK FACTORS (NUMERICAL) IN WOMAN WITH BREAST CANCER

Risk factors	Mean (Standard deviation)	
	Cycle 1	Cycle 2
Menarche (year)	13.7 (4.2)	13.5 (4.2)
Deliveries (number)	2.3 (4.2)	2.2 (2.1)
Menopause (year)	49.4 (10.6)	50.0 (12.7)
Cancer detected (year)	61.2 (14.9)	61.1 (14.1)

TABLE 4 B
PRESENCE OF RISK FACTORS (DESCRIPTIVE)

Risk factors	Yes		No	
	Cycle 1	Cycle 2	Cycle 1	Cycle 2
Positive family history	7	6	64	38
Breast lesion	22	10	49	34

Discussion

The National Program of Breast Cancer Early Detection has been conducted by screening, using mammography as the method recommended by the European Union for women aged 50–69. Screening is performed every 2–3 years for all women of this age irrespective of the place of residence, social status and level of education, health insurance, etc. By definition, screening includes asymptomatic and average-risk population. The women having symptoms or positive family history should undergo a different examination algorithm from younger age. However, the women with positive family history not previously submitted to appropriate work-up are covered by screening, entering a respective note in the questionnaire to be filled-out when presenting for screening. The main purpose of screening mammography is detection of clinically occult breast cancer, which is still small and in the early stage of development[11]. Some 90% of breast cancers are considered to be curable if timely detected, and mammography can detect lesions for up to two years before they become palpable. It takes 5–8 years for the tumor to grow to 1 cm diameter, and it is when it can be clinically detected by palpation[12]. Detection of breast cancer in a stage when it is still curable, along with 25% reduction in the related mortality rate in the next 5 years and improvement in the patient quality of life is one of the NP goals. In Croatia, the Mamma NP has been conducted since October 2, 2006. During 3 years (from October 2006 to September 2009) in cycle 1, the response rate was 58.5% of 720,981 women invited, with more than 1500 cases of breast cancer detected[10]. In Brod-Posavina County, the response rate in cycle 1 was 53.2% of 26,419 women invited. At the national level, cycle 1 termination was proclaimed by the Commission for NP implementation and National Coordinators. In cycle 2, which started in September 2009 and lasted until the end of 2011, the response rate was 57.0% of 25,022 women invited. Total response rate in the County in the two cycles was by far lower than expected (70%) according to the Ministry of Health guidelines, thus one of the three main goals was not reached[13]. The response rate was below the acceptable rate of 70% or desirable rate of 75% according to the European Guidelines for Quality Assurance in Breast Cancer Screening[14]. The response rate in cycle at the national level was 58.5%, although in some counties it exceeded the set rate of 70% (e.g., Međimurje County 81.3%, Bjelovar-Bilogora County 78.5% and Požega-Slavonija County 74.7%)[10]. In cycle 1, a response rate lower

than expected was also recorded in Dubrovnik-Neretva County (59.5%)[15]. We also analyzed the reasons for not presenting for screening (Table 2). The great majority of women that did not present for screening also failed to call the free telephone to explain the reason for their lack of response, pointing to the lack of interest in the screening. The percentage of these women was 37% in cycle 1 and even more, 45.4% in cycle 2. In Dubrovnik-Neretva County, there were 35.6% of women with unavailable information on the reason for their lack of response[15]. We presumed the proportion of women not responding to the call for screening to be lower in cycle 2, however, the analysis revealed the opposite. Such a result was unexpected considering the length of NP implementation along with sensitization and education of the public at large on its performance and associated benefit. In this part of the NP, general practitioners and visiting nurses should have the key role in motivation and education of women. In cycle 1 and cycle 2, there were 6.9% and 4.9% of incorrect addresses, respectively, obviously requiring NP updating with recent residence data. The NP base of target women was based on the data received from the Ministry of Internal Affairs (place of residence) and Croatian Institute of Health Insurance (respective general practitioner). The Brod-Posavina County is one of the counties with their territory partially occupied during the war, thus a certain number of women have been living elsewhere since the post-war period. We presumed that the response rate would therefore be lower in the area of Nova Gradiška because it was partially occupied during the war; however, the results showed that it was not true (Table 2). As the public health team has collected and processed health statistics forms, here we present the following forms with the diagnosis C50 – Breast Cancer: Malignant neoplasm report; Hospital statistics form; Histopathology finding; and Death certificate; all data were updated in the NP. These procedures contribute to data accuracy and supplement computer updating with death databases, Cancer Registry database, etc. Mammography finding was described by the radiologist according to the BI-RADS classification, issued by the American College of Radiology. This system helps in standardization of findings and provides recommendations for further work-up, and it is obligatory in North America and ever more in Europe[11]. The BI-RADS classification was introduced at NP launching. In cycle 1, 12,406 mammography findings were analyzed according to BI-RADS classification, i.e. 8377 in Slavonski Brod and surrounding communities, and 4029 in Nova Gradiška and surrounding communities (Table 3). The analysis yielded 21.1% of findings with BI-RADS 0 (30.7% in Slavonski Brod and 1.2% in Nova Gradiška). According to BI-RADS classification, 0 finding means that additional examination or comparison with previous mammography findings is needed. The strikingly higher proportion of BI-RADS 0 findings in Slavonski Brod (30.7%) compared with Nova Gradiška with only 1.2% of BI-RADS 0 findings points to differences in the interpretation of findings between particular mammography units. In cycle 2, a total of 11,223 mammography findings were analyzed according to BI-RADS classification; 14.3% of findings required additional work-up (BI-RADS 0), again with considerable difference between Slavonski Brod and Nova Gradiška (19.5% *vs*. 1.8%) (Table 3). The proportion of BI-RADS 0 findings had decreased considerably in Slavonski Brod, suggesting that the experience of radiologists had improved with time and interpretation of ever more findings during screening. It should also be noted that the BI-RADS 0 category is usually employed on mammography screening, while it is rarely used on diagnostic mammography. Impossibility of comparison with previous mammography findings poses a major problem to radiologists. In the NP, the envelopes and their content were limited to the weight of only one set of mammography findings, thus preventing comparison of findings and increasing considerably the rate of BI-RADS 0 findings. The number of these findings was too high in Slavonski Brod and too low in Nova Gradiška. This drawback should be corrected in the future to make these values closer to each other. The possibility of sending previous findings for comparison should be introduced at the national level, which would greatly reduce the number of BI-RADS 0 findings, while increasing those of BI-RADS 2 and 3 categories. In Dubrovnik-Neretva County, there were 11.1% of BI-RADS 0 findings[15], just like our 30% in Slavonski Brod exceeding the acceptable <7% according to European guidelines[14]. The rate of mammography findings requiring repeat examination and classified as BI-RADS 0 (so-called recall rate) is one of the main factors in the mammography screening quality control[15]. In cycle 1, 71 cancers were verified by the additional work-up recommended, accounting for 0.05% of all women presenting for screening and yielding a rate of newly detected breast cancer of 5.7/1000 examined women. In cycle 2, 44 cancers were verified by diagnostic work-up, accounting for 0.3% of all responding women and yielding a rate of 3.9/1000 examined women. The rates of newly detected breast cancer in the Brod-Posavina County (1.8–10.1/1000) were consistent with literature data[15]. At the time of diagnosis, 4 women were aged 71 and one woman was aged 72 due to the time needed for follow up and data processing. According to NP, women with suspect findings should undergo complete diagnostic work-up within one month[16]. From the questionnaires filled-out by women on their presenting for screening, data on the age at menarche, last menstruation, number of deliveries and family history were analyzed. Besides these risk (or protective) factors, the age at cancer detection and history data on benign breast lesions were recorded (Table 4a and 4b) and compared with literature reports. According to literature data, the length of reproductive age, i.e. the risk of breast cancer increases with prolonged effect of circulating estrogen[17,18], early menarche and late menopause[19]. Although younger age at menarche is considered to be associated with an increased risk of breast cancer, this risk varies according to the type of tumor with positive or negative estrogen receptors[20]. In our women, the mean age at menarche was around 13 years in both cycles; based on literature data, the women with verified breast cancer did not belong to those at an in-

creased risk or were at the risk borderline. Late menopause increases the risk of breast cancer; in women with menopause at age 55 are at a twofold risk of developing breast cancer recorded in women with menopause at age 45. In women with breast cancer detected, the last menstruation was recorded at age 50 on average; 90% of women in cycle 1 and 93.2% of women in cycle 2 were in menopause at the time of cancer diagnosis. Similar to our results, literature data also show that breast cancer is most commonly detected in postmenopausal women[21,22]. The women from Brod-Posavina County had had 2 deliveries on average, whereas only 8.5% and 4.5% of women were nulliparae. Some literature data point to the role of the number of deliveries, whereby a higher number of deliveries is associated with a lower risk of breast cancer (as compared with nulliparity)[18], however, there also are opposite reports on the parity and length of breastfeeding having no impact on the occurrence of breast cancer[23]. Our results appear to support the latter statement. Positive family history was recorded in 9.9% of women in cycle 1 and 13.6% of women in cycle 2. The information obtained from the questionnaires did not specify the female relatives involved (1st or 2nd degree). According to literature data, however, 85% of women with verified breast cancer have negative family history, while 85% of women having a 1st degree relative diagnosed with breast cancer will never develop breast cancer; besides heredity, great role is attributed to environmental factors[24]. Literature data also point to the important synergy of particular risk factors[25]. Thus, individual risk factors should be observed in association with others, body weight and body mass index in particular, in order to interpret their effects more accurately. Body weight and body mass index were not analyzed in the present study due to the lack of data on these factors in such a great number of questionnaires. In our women, history data revealed benign breast lesions in 31.0% and 22.7% of cases in cycle 1 and cycle 2, respectively. Although cycle 1 mammography findings showed breast lesions according to BI-RADS classification, the women reported no breast lesions (only 8 of 34 women were aware of some breast lesions in their cycle 1 mammography findings). This information points to the importance of including general practitioners in the screening; namely, when the women receive the radiologist's finding by mail, they should visit their family physician, who will explain them the finding and give them further instructions. Other authors also point to the role of general practitioners[26,27], suggesting that the screening should be part of the primary health care performed together with general practitioners as the 'starting point'. In Croatia, general practitioners have a minor role and are only included in the program in case of suspect findings, when referral slips for additional diagnostic work-up and therapy are required. The number of newly detected cases of breast cancer is expected to rise initially with NP implementation[16,1]. Data from Cancer Registry on the incidence of cancer in Croatia show an increase a year after the introduction of screening (2007) in the age groups covered by the screening[28]. In the 50–54 age groups, an increase in the incidence of breast cancer has been recorded since 2007, whereas in the older age groups the incidence has been on increase continually since 2006. In the Brod-Posavina County, data are available for all women aged 0 to ≥85, showing no increase. In 2005 (before screening), the incidence *per* 100,000 was 103.3, and in 2006 upon the introduction of screening it was 90.1. An increase to 102.2 was noted again in 2007 and to 105.5 in 2008. As specific age distribution is not available, it is not possible to determine whether the incidence of breast cancer has increased in the age groups covered by screening. Preventive programs of early cancer detection are justified if leading to mortality reduction, however, literature data show that quite different results may be obtained depending on the type of data analysis, yielding variable values of mortality reduction (from rather high 25% to only 6%)[29]. More than 5 years (7–10 years) should elapse from the beginning of screening to observe the trend in mortality and to draw valid conclusions; in addition, comparison with the age groups not included in screening is also required. Over the past few decades, substantial progress has been made in diagnosis and treatment of breast cancer[30]. Also, other factors such as modification of risk factors and treatment of the disease have greater impact on mortality reduction[31].

Conclusion

The implementation of the National Program of Breast Cancer Early Detection in Brodsko-posavska County should be upgraded at various levels. Some improvements are necessary at the national level, e.g., higher media promotion, continuous education of the professionals involved in screening, and inclusion of general practitioners and visiting nurses. Information on residence addresses, family physicians, deaths and cancer patients should be accurate and updated. In the County, the currently low level of public health awareness should be improved; adequate personnel for additional engagement in screening should be ensured; and medical care should be upgraded to reduce the time to diagnostic work-up upon establishing suspicion of breast cancer. Efficiency of the program cannot be verified due to the relatively short time of screening performance and certain drawbacks in systematic evaluation. Women should definitely be informed on all the known advantages and shortcomings of mammographic screening, but this will require high health awareness of the public at large for the women to make the best decision.

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NACIONALNI PROGRAM RANOG OTKRIVANJA RAKA DOJKE U BRODSKO-POSAVSKOJ ŽUPANIJI (ISTOK HRVATSKE)

SAŽETAK

Cilj rada bio je prikazati rezultate Nacionalnog programa za rano otkrivanje raka dojke u Brodsko-posavskoj županiji, u periodu od 2006. do 2012. godine. Analizirali smo odaziv u dva provedena ciklusa, zatim otkrivene karcinome s obzirom na čimbenike poput dobi prve i zadnje menstruacije, starosti žena u vrijeme otkrivanja karcinoma, porode i dojenje, te nalaze mamografije prema BI-RADS-u pred potvrđivanje dijagnoze. Korišteni su podatci softvera kojim su povezani Zavodi za javno zdravstvo preko servera Ministarstva zdravlja i anketni upitnici koje žene ispunjavaju prilikom pristupa probiru obrađeni deskriptivnom metodom. Nalazi mamografije razvrstani su prema BI-RADS klasifikaciji. U dva ciklusa pozivanja u periodu od 2006. godine do 2012.godine na probirnu mamografiju pozivane su žene u dobi od 50–69 godina. Odaziv za Brodsko-posavsku županiju u prvom ciklusu je bio 53,2% i otkriven je 71 karcinom, u prosječnoj dobi od 61,3 godina. U drugom ciklusu je odaziv bio 57,0 %, a otkriveno je 44 karcinoma u prosječnoj dobi od 62,5 godina. Nalaza mamografije koji zahtijevaju dodatnu obradu (BI-RADS 0) bilo je 21,1% u 1. ciklusu i 14,3% u 2. ciklusu. Pojedinačni rizični faktori poput rane menarhe, kasne menopauze, pariteta, pozitivne obiteljske anamneze ili postojećih dobroćudnih promjena na dojkama nisu dokazani kod žena kojima je potvrđen karcinom. Povećanje stope incidencije na 100.000 stanovnika u Brodsko-posavskoj županiji nakon uvođenja Nacionalnog programa nije zabilježeno. Autori zaključuju kako je neophodno povećati razinu zdravstvene prosvjećenosti, osigurati dostatan kadar za dodatnu angažiranost u provođenju probira, te poboljšati medicinsku skrb kako bi se skratio period od postavljanje sumnje do potvrđivanja dijagnoze.