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RADIO-IMAGING DIAGNOSIS OF BREAST CANCER

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INTRODUCTION

Breast cancer is one of the most common cancers in women due to immunological and endocrinological implications and especially due to the difficulty of early diagnosis. Given the current life expectancy, it was determined that about one in nine women will suffer from breast cancer; if found in an early stage of development can be treated with good results by conservative breast surgery, possibly followed by chemotherapy and or radiotherapy. This treatment of cancer, if diagnosed early, provides a survival rate up to five years of 97%.

Every year, in Romania, about 6,000 women are diagnosed with breast cancer.The incidence of breast cancer has increased slowly but continuously in recent decades. showing an increase from 25 /100.000 women in 1988 to 40,14 /100.000 women in 1996, 50.56//100.000 women in 2006.

The purpose of this paper is to promote preventive practices among the population and to develop an effective strategy for screening for early detection radio-imaging of breast cancer. [22, 23, 26] Using nuclear magnetic resonance to perform screening among women presenting high-risk mutations in genes associated with breast cancer has generated debates concerning the definition of the optimal amount of evidence of effectiveness of new tests for the identification of the disease.

The gold standard is the results of clinical trials with statistical control under which, in the case of mammography for breast cancer early detection reduces mortality, but how should the new tests be evaluated so that the disease could be detected earlier? [7, 8, 9]

The objectives of the paper are: informing patients diagnosed with breast cancer about the importance of controlling extrinsic risk factors in disease progression; raising awareness in women with high risk on the role of imaging examinations and breast self examination for early detection; educating the general female population on the role of good practices and behavior in reducing breast cancer risk.[20]

METHODS

The study group is represented by a total of 27 patients were investigated using MRI, mammography and ultrasound imaging in a clinic in Timişoara between 2013 - 2014.

Clinical evaluation of the conditions presented by the study group patients was performed according to a form examination (observation sheets)

The distribution by age groups studied group:

Patients diagnosed with: 22 patients with infiltrating ductal carcinoma, 2 patients with mixed ductal and lombular carcinoma, 2 patients with proliferative fibroadenoma and a patient with sarcoma.

Among them as follows:

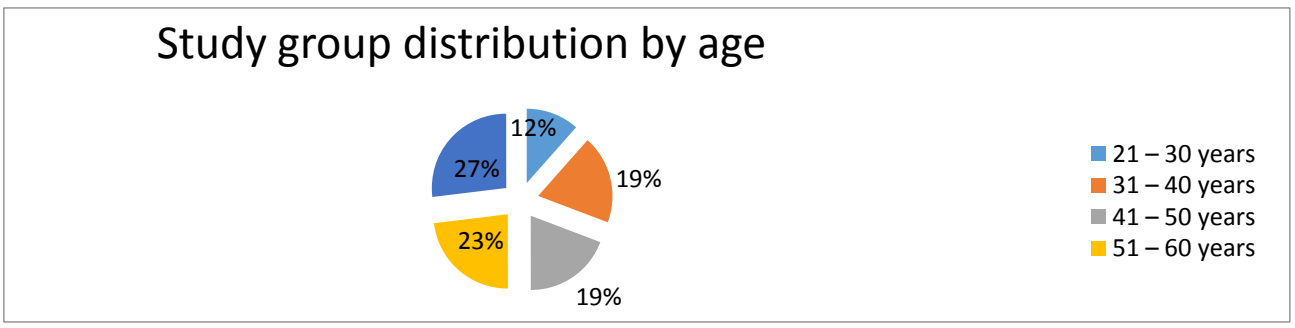
- a number of 21 were examined by ultrasound and mammography;
- a total of 12 were examined by ultrasound and MRI;
- a number of 6 was examined by ultrasound, mammography and MRI.

The mammographic examinations of the 21 patients detected:

20 patients with infiltrating ductal carcinoma, a patient with proliferative fibroadenoma.

The MRI examinations of the 12 patients detected:

8 patients with infiltrating ductal carcinoma, 2 patients with mixed ductal and lombular carcinoma, a patient with proliferative fibroadenoma and a patient with sarcoma.



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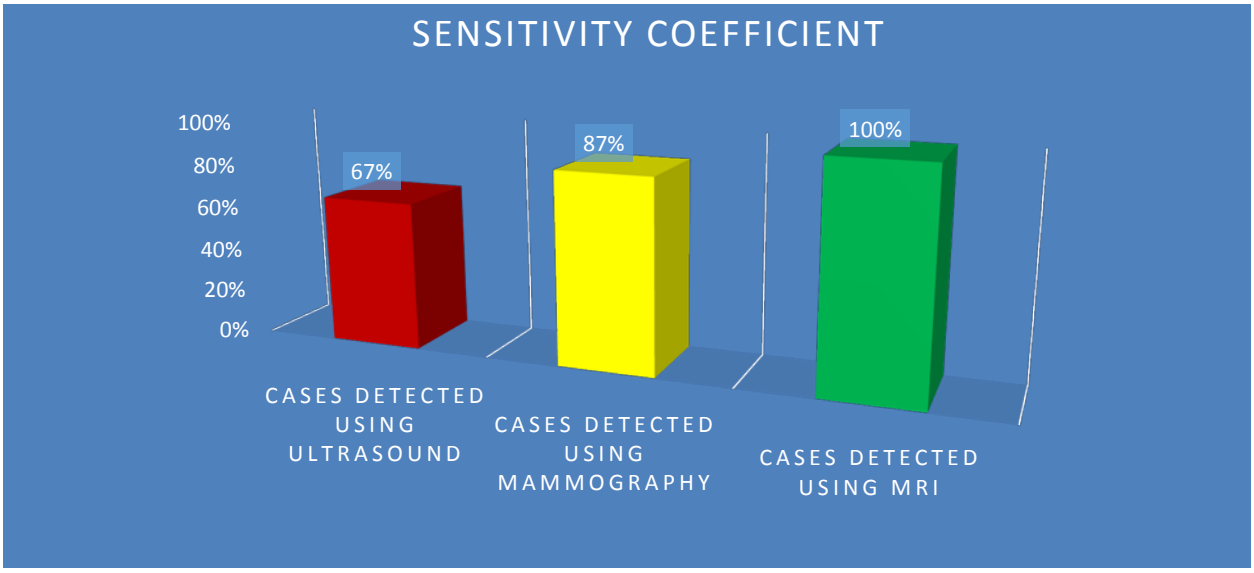

DISCUSSIONS

1. An imaging investigation is likely to be used for screening if they can demonstrate that it is more sensitive in detecting pathological aspects. Detection of obvious cases does not necessarily mean that its use will lead to a reduction in deaths caused by breast cancer.
2. To meet the criteria of an effective screening test is necessary to include also additional neoplasms detected which are alleged to progress in the course of the patients lifetime and also those which patients can be cured of with early treatment.
3. Additionally discovered cases using these new tests could have histopathological confirmation, but they might not evolve nor determine any symptoms during the patient's life: thus, a new test could lead soon to an excessive diagnostic as opposed to a better prognosis.
4. Cross-sectional studies can be used to assess the sensitivity of different tests, either by comparing rates of cancer screening in subjects assigned to a particular test or paired studies in which patients undergo both tests, matter which has been studied in this paper. In the latter case, the sensitivity is estimated as being the number of neoplasms, as detected by each type of test, divided by the total number of cancers identified by other test. Despite not provide data on the evolution of cases, the transverse studies provides a meaningful assessment of relative sensitivity.

CONCLUSIONS

1. Using MRI, the sensitivity in detection of breast cancer is greatly increased, virtually all patients investigated in this study after MRI investigation were diagnosed with breast cancer.
2. After reviewing the studies we suggest a yearly MRI screening for women over the age of 25, this method having the advantage of being noninvasive. American Cancer Society (ACS) recommends annual brest screening MRI's for women with known BRCA gene mutation 1, BRCA 2, or women who have a family history strongly suggestive of higher than 20% risk for developing cancer breast. Also there aren't enough evidence to recommend for or against MRI screening of women who have been diagnosed with this pathology.
3. Women with a personal history of breast cancer should consider an annual MRI screening in addition to mammography.
4. Although mammography reduces breast cancer mortality, it does not detect all breast cancers. MRI has a higher sensitivity than a mammography.
5. The performed paired transverse study confirms the highest sensitivity coefficient for MRI, followed by mammography and lowest coefficient of sensitivity for ultrasound investigations.

BIBLIOGRAPHY

1. Ahern, CH. Shis, YC. Dong, W. Parmigiani, G. Shen, Y. (2014), Cost-effectiveness of alternative strategies for integrating MRI into breast cancer screening for women at high risk, Br J Cancer, 458;

2. Boer, R. Warmerdam, P. Koning, H. (1994), Extra incidence caused by mammographic screening, Lancet, 343;
3. Brawley, OW. (2014), The argument for breast cancer screening, Clin Adv Hematol Oncol, 6;
4. Brown, SL. Kartoz, C. (2014), Breast Cancer Risk Assessment in Primary Care, MCN Am J Matern Child Nurs, 39;
5. Chock, C. Irwig, L. Berry, G. Glasziou, P. (1997), Comparing dichotomous screening tests when individuals negative on both tests are not verified. J Clin Epidemiol, 50;
6. Elmore, JG. Armstrong, K. Lehman, CD. Fletcher, SW. (2005), Screening for breast cancer. JAMA, 234;
7. Ernster, V. Barclay, J. Kerlikowske, K. Grady, D. Henderson, I. (1996), Incidence of and treatment for ductal carcinoma in situ of the breast. JAMA, 275;
8. International Agency for Research on Cancer, (2002), IARC handbooks of cancer prevention, volume 7: breast cancer screening. Lyon: IARC Press;
9. Irwig, L. Houssami, N. van Vliet, C. (2004), New technologies in screening for breast cancer: a systematic review of their accuracy. Br J Cancer 90;
10. Khalvati, F. Gallego Ortiz, C. Balasingham, S. (2014), Automated Segmentation of Breast in 3D MR Images Using a Robust Atlas, IEEE Trans Med Imaging, 10;
11. Le-Petross, HT1. Whitman, GJ. Atchley, DP. Yuan, Y. Gutierrez-Barrera, A. Hortobagyi, GN. Litton, JK. Arun, BK. (2011), Effectiveness of alternating mammography and magnetic resonance imaging for screening women with deleterious BRCA mutations at high risk of breast cancer, Cancer, 17;
12. Liberman, L. (2004), Breast cancer screening with MR-what are the data for patients at high risk?, N Engl J Med, 351;
13. Magda, P. Dan, P. (2010), Cancerul de sân. Noţiuni de investigatie imagistică. Editura Veritas, Timisoara;
14. Mayrhofer, RM. Ng, HP1. Putti, TC2. Kuchel, PW3. (2013), Magnetic resonance in the detection of breast cancers of different histological types, Magn Reson Insights, 6;
15. McDonnell, CH. Seidenwurm, DJ. McDonnell, DE. Bobolis, KA. (2013), Self administered screening for hereditary cancers in conjunction with mammography and ultrasound, Fam Cancer, 4;
16. Mircea, I. Gheorge, N. (2007) Atlas de anatomie umană, Editura ştiinţifică şi enciclopedică, Bucureşti;
17. Murphy, CD. Lee, JM. Drohan, B. Euhus, DM. Kopans, DB. Gadd, MA. Rafferty, EA. Specht, MC. Smith, BL. Hughes, KS. (2008), The American Cancer Society guidelines for breast screening with magnetic resonance imaging: an argument for genetic testing, Cancer, 11;
18. Paci, E. Warwick, J. Falini, P. Duffy, SW. (2004), Overdiagnosis in screening: is the increase in breast cancer incidence rates a cause for concern?, J Med Screen, 11;
19. Pisano, ED. Gatsonis, C. Hendrick, E. Yaffe, M. Baum, JK. Acharyya, S. et al. (2005), Diagnostic performance of digital versus film mammography for breastcancer screening, N Engl J Med, 353;
20. Ray, D. Grumet, S. Lagmay-Fuentes, P. Jacob, L. Terzo, A. Puma, A. Hwang, S. (2014), Short-term outcomes of the implementation of a computer-based breast cancer risk assessment program during screening mammography, J Community Support Oncol, 12;
21. Robson, ME. Offit, K. (2004). Breast MRI for women with hereditary cancer risk. JAMA, 292;
22. Taylor, R. Supramaniam, R. Rickard, M. Estoesta, J. Moreira, C. (2002), Interval breast cancers in New South Wales, Australia, and comparisons with trials and other mammographic screening programmes, J Med Screen, 9;
23. Yaffe, M. (2004), What should the burden of proof be for acceptance of a new breast-cancer screening technique? Lancet, 364;
24. Youk, JH. Son, EJ. Gweon, HM. Kim, H. Park, YJ. Kim, JA. (2014) Comparison of Strain and Shear Wave Elastography for the Differentiation of Benign From Malignant BreastLesions, Combined With B-mode Ultrasonography: Qualitative and Quantitative Assessments, Ultrasound Med Biol, 26;
25. Zackrisson, S. Andersson, I. Janzon, L. Manjer, J. Garne, JP. (2006), Rate of over-diagnosis of breast cancer 15 years after end of Malmö mammographic screening trial: follow-up study. BMJ, 332;
26. Zahl, PH. Strand, BH. Maehlen, J. (2004), Incidence of breast cancer in Norway and Sweden during introduction of nationwide screening: prospective cohort study. BMJ, 328;