

The Usefulness of Spectral Mammography in Surgical Planning of Breast Cancer Treatment-Analysis of 999 Patients with Primary Operable Breast Cancer: Comments to Article

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Description

Breast cancer is the most common malignancy in women worldwide. Mammography (MG) is the most useful examination for detecting focal lesions in breast but its overall sensitivity and specificity in detecting breast cancer isn't very high 62%-75%. It is known that, especially in young women with glandular breasts, the sensitivity of MG is lower. Contrast-Enhanced Spectral Mammography (CESM) is a new technique which has been intensely developed over the last few years. It based on the double-energy technology using iodine contrast agent is most related to angiogenesis. CESM corresponds to approximately 1.2 times the dose in standard mammography. Multifocal and multicentric breast cancers are defined as the presence of two or more tumors within the same breast. If they occur within one quadrant of the breast are called multifocal, and multicentric when they occur in two or more quadrants. In imaging diagnostic multifocal is assumed to exist when the distance between the lesions is lower than 5 cm, while multicentricity-when the distance is higher than 5 cm. Multifocality and multicentricity of the neoplasm lesions are the decided factors determining the surgical choice between breast conserving therapy and mastectomy.

In a huge group of 999 patients with breast cancer was analyzed. All of them had MG and CESM before surgery. Mammography results were assessed according to the BI-RADS scale by two independent radiologists with work experience of over 20 years. CESM were assessed by one radiologist with 8 years of experience in CESM diagnostics. In comparative results authors showed that in 77%, 79% of cases MG and CESM both indicated that the tumors were unifocal. However, in 16%, 41% cases unifocal cancer diagnosed in MG found multifocal presence in CESM. Moreover, by comparing results of mammography with postoperative histopathological examinations authors demonstrated that multifocal-multicentric breast cancers MG had Positive Predictive Value (PPV) 85%, 71% and negative predictive value (NPV) 85%, 52%. In CESM PPV achieved 80%, 57% and NPV 94.91%.

Unexpectedly there was no statistically significant difference in the presence of multicentricity/multifocality between lobular and NST cancers (27%, 78% vs. 21.24%, $p=0.22$). In most reports multicentricity/multifocality cancers were found in lobular type. Moreover, in few works that have been published about CESM, no such analysis was carried out, and the material covered a much smaller number of patients.

CESM in detecting breast cancers ranges from 92%-100% and has comparable sensitivities and specificities to Magnetic Resonance Imaging (MRI) examinations but there are no recommendations for its use. It seems that indications for CESM and magnetic resonance imaging examination are similar, except for women with high risk of breast cancer, in whom an MRI examination should rather be performed due to lack of exposure to ionizing radiation. In our opinion CESM should be performed in all patients with breast cancer as examination more sensitivity than MG. According to the authors, it is worth performing both in lobular and NST breast cancers. The cost of CESM is lower that of MRI and the time needed to perform the examination and interpret the results is shorter than for the former method. Contrast-Enhanced Spectral Mammography would benefit in patients with cardiac pacemaker, metal implants and claustrophobia and it should be performed in all women with contraindications for MR examination.

Conclusion

The interesting results of this analysis encouraged the authors to further research on the wider use of CESM and compare with MR examination in the diagnosis and monitoring of breast cancer treatment.