

Contrast-Enhanced Mammography - Enhancement Level vs Histopathology

Prof. Elżbieta Łuczyńska, MD, PhD

Spectral mammography is a new diagnostic method. Contrast-Enhanced spectral Mammography (CEM) was introduced in Poland in February 2011.

Nowadays, we are all aware that CEM is comparable with breast MRI. Suspicious lesions enhance on both methods, however, sometimes also benign lesions show enhancement.

Whereas differentiating between malignant and benign lesions is sometimes possible on breast MRI due to the application of kinetic curves, there is no such possibility on CEM. We hypothesized that CEM lesions may be assessed on the basis of their enhancement pattern and level.

We compared subjective assessments of enhancement level on CEM and numerical values measured using the region of interests (ROIs). Furthermore, the obtained enhancement level values were categorized.

Patients included in our study were diagnosed with suspicious findings on previous examinations and referred to CEM. Subjective evaluation of contrast enhancement and its designation as weak, medium or strong were the basis of the qualitative assessment. Measurements of an average enhancement value and standard deviation (sigma) value within the ROI drawn around the enhancing lesion area were the basis of the quantitative assessment.

The study involved 151 patients with 195 diagnosed lesions and enabled the verification of the relation between classifications based on the threshold values of %RS (percentage signal difference between enhancing lesion and background) and SDNR (signal-difference-to-noise ratio) on one side and the subjective assessment on the other side.

The results led us to the conclusion that quantitative assessment of contrast enhancement on CEM may be helpful in making decisions regarding biopsy necessity. This, in turn, may influence the number of unnecessary biopsy procedures and reduce the cost of breast diagnostics.

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