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Breast

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The Value of breast parenchymal enhancement on MRI

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A. The enhancement of normal fibroglandular tissue on breast MRI was known as background parenchymal enhancement (BPE), which was firstly described independently in the updated BI-RADS rather than a pattern of non-mass enhancement.

B. The typical distribution of BPE is symmetric due to the blood supply which is usually called “picture framing”. BPE was known to be a physiologic phenomenon affected by hormonal levels, so the recommendations to schedule MRI in the follicular phase or 2nd week of the cycle (commonly days 7–14).

C. Previous studies showed that the assessment of BPE was feasible with both qualitative and quantitative measured.

D. Evidence suggested that BPE was associated with a risk of developing breast cancer, and BPE could be a predictor of neoadjuvant breast cancer treatment response and outcomes.

E. It also showed that BPE may serve as a prognostic marker, with findings supporting a possible correlation between BPE and molecular subtypes. Moreover, the emerging evidence suggests that radiomic analysis of BPE has the potential to provide predictive bio-markers in personalized decision making.

This topic comprehensively reviews BPE with a particular focus on its clinical value, such as the breast cancer risk assessment, neoadjuvant breast cancer treatment response, molecular subtypes and radiomics analysis.

Keywords: breast parenchymal enhancement, MRI, cancer risk, prognostic marker