

Addition of Contrast-Enhanced Mammography to Tomosynthesis for Breast Cancer Detection in Women with a Personal History of Breast Cancer: Prospective TOCEM Trial Interim Analysis

Berg, W. A., Berg, J. M., Bandos, A. I., Vargo, A., Chough, D. M., Lu, A. H., Ganott, M. A., Kelly, A. E., Nair, B. E., Hartman, J. Y., Waheed, U., Hakim, C. M., Harnist, K. S., Reginella, R. F., Shinde, D. D., Carlin, B. A., Cohen, C. S., Wallace, L. P., Sumkin, J. H., & Zuley, M. L. *Radiology*. 2024. 311(1):e231991. doi:10.1148/radiol.231991

Study Goal

- To conduct an interim analysis of adding contrast enhanced mammography (CEM) to digital breast tomosynthesis (DBT) on cancer yield, stage, and recall rates in women with a personal history of breast cancer (PHBC).

Study Population

- Prospective study following 1273 women with PHBC aged 30-85 years.
 - Mean age at entry: 63.6 years
- Inclusion criteria:
 - Personal history of ductal carcinoma in situ or invasive breast cancer, had undergone treatment, had at least one remaining breast without implants, had undergone routine annual mammography, and were asymptomatic.
- Women were recruited by mammographic technicians during their routine mammogram appointment or through referrals from breast surgeons or oncologists.

Key Outcome Measures

- Incremental cancer detection rate
- Recall rate

Key Findings

- Adding CEM to DBT increased the number of second malignancy detections by 7.1 per 1000 screenings ($p < .001$) in year 1, and by 3.8 per 1000 screenings ($p = .01$) in years 2 and 3 (combined)
- In response, the number of recalls increased by 6.6% and 5.0%, respectively.
- In 18 breasts with cancer detected only at CEM, 13 were invasive (72%) and 8 of 9 (88%) with nodal staging were NO.
- After two-observer integrated assessment, the interval rate was 3 of 1883 (1.6 per 1000 screenings) which included two axillary recurrences missed at DBT plus CEM.

Conclusion

Adding CEM to DBT markedly increased early breast cancer detection in women with PHBC, with a recall rate increase of approximately 5.0-6.6%.

