

Trends in Close Margin Status and Radiation Therapy Boost in Early Stage Breast Cancer Treated with Breast Conserving Therapy

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PURPOSE/OBJECTIVE(S)

The Society of Surgical Oncology and American Society for Radiation Oncology released a consensus statement in 2014 (later endorsed by Choosing Wisely in 2016) recommending “no tumor on ink” as an adequate margin for breast cancer treated with lumpectomy. This guideline targeted patients with close margins (CM, i.e. less than 2 mm) in order to decrease rates of re-excision, improve cosmetic outcomes, and decrease costs. We hypothesize that a consequence of this policy would be an increased rate of CM and corresponding increase in radiation therapy boost (RTB) utilization to compensate.

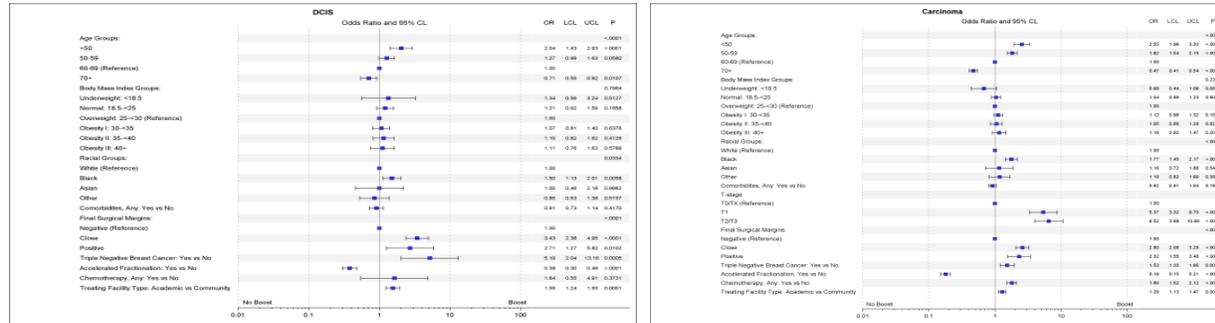
MATERIAL & METHODS

A statewide, multi-institutional consortium of up to 27 academic and community clinics prospectively collected patient level data from 2012 – 2019 of breast ductal carcinoma in site (DCIS) or cancer patients treated with breast conserving therapy. For this analysis, inclusion criteria included T0-3 disease, lumpectomy for initial surgical management, pathologic margin less than 2 mm, and use of adjuvant radiation therapy (either conventional [CFX] or accelerated [AFX] fractionation with or without boost). The chi-square test was used to compare time periods and multivariable logistic regression was used to explain boost use.

RESULTS

| | Total | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------------|--------------|-------------|------------|------------|-------------|------------|------------|------------|-------------|
| DCIS, CM | 389 (15.5)* | 19 (13.2) | 39 (15.5) | 53 (16.8) | 80 (20.8) | 62 (16.5) | 49 (13.0) | 31 (10.7) | 56 (14.9) |
| Carcinoma, CM | 1126 (11.1)* | 39 (8.0) | 126 (13.5) | 173 (13.7) | 239 (15.4) | 179 (11.0) | 144 (9.8) | 78 (6.5) | 148 (9.0) |
| CFX, No Boost | 336 (2.7)^ | 20 (3.2) | 47 (4.0) | 73 (4.6) | 53 (2.7) | 63 (3.1) | 36 (2.0) | 24 (1.6) | 20 (1.0) |
| CFX, Boost | 5465 (43.1)^ | 471 (74.98) | 834 (70.4) | 983 (62.4) | 1000 (51.7) | 816 (40.6) | 633 (34.3) | 380 (25.5) | 348 (17.2) |
| AFX, No Boost | 1929 (15.2)^ | 53 (8.4) | 115 (9.7) | 203 (12.9) | 245 (12.7) | 304 (15.1) | 339 (18.4) | 301 (20.2) | 369 (18.3) |
| AFX, Boost | 4955 (39.1)^ | 85 (13.5) | 189 (16.0) | 316 (20.1) | 635 (32.9) | 826 (41.1) | 836 (45.3) | 785 (52.7) | 1283 (63.5) |
| CM, Boost | 1515 (91.3)^ | 52 (89.7) | 157 (95.2) | 202 (89.4) | 300 (94.1) | 226 (93.8) | 167 (86.5) | 99 (90.8) | 180 (88.2) |

* (%) reflects percent positive in time period; ^ (%) reflects percent positive of total population in time period



- A total of 12,685 pts were in the database from which CM was identified in 389/2513 DCIS pts (15.5%) and 1126/10172 carcinoma pts (11.1%).
- Comparing pre- and post- Choosing Wisely endorsement (2012-2015 vs. 2017-2019), rates of CM decreased for all patients (14.4% vs. 9.5%, p<0.0001) as did overall rates of RTB (84.8% vs. 79.7%, p<0.0001).
- Trends in RTB differed based on fractionation: CFX was stable (94.5% vs. 94.5%, p~1) whereas AFX had increased (66.5% vs. 74.2%, p<0.0001).
- Multivariable analysis for RTB: DCIS was age less than 50, black race, close/positive margins, conventional fractionation, and academic practice setting. Carcinoma was age less than 60, black race, close/positive margins, triple negative disease, conventional fractionation, having chemotherapy, and academic practice setting.

SUMMARY/CONCLUSION

- Despite a loosening of margin requirements through consensus guidelines and campaigns, there has actually been a decrease in both rates of CM and overall RTB.
- Trends in RTB differed by fractionation (CFX stable, AFX increase), which were independent of rates of CM.
- For both DCIS and carcinoma, factors associated with RTB were young age, black race, close/positive margins, conventional fractionation, and academic practice setting.

REFERENCES/ACKNOWLEDGEMENTS

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- For more information on MROQC, please visit www.mroqc.org