Increasing use of hypofractionated whole breast irradiation: an analysis of practice patterns within a state-wide quality consortium

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PURPOSE / OBJECTIVE(s)

- Randomized clinical trials support the efficacy and safety of hypofractionated whole breast irradiation (H-WBI) in select patients with early stage breast cancer following breast conserving surgery[1,2]
- 2011 ASTRO consensus guidelines supported appropriateness criteria for the use of H-WBI based on subsets of patients well represented in these trials: age ≥50 yrs, pT1-2/pN0 disease, patients who did not receive chemotherapy (CHT), and radiation plans with dose heterogeneity ±7%[3]
- This longitudinal study reports the use of H-WBI in a state-wide quality consortium

MATERIALS & METHODS

- We identified women in the consortium database who received WBI between 2012 (11 institutions, 638 cases) and 2017 (22 institutions, 1295 cases)
- We determined the proportion of H-WBI cases (as a percentage ±95% CI) over time within subgroups that satisfied all or some 2011 guideline criteria (Separation (SEP) >25cm along the central axis was used as a surrogate for dose heterogeneity)
- Patients who met all but one of the guideline criteria were considered "otherwise endorsed."

Figure 1: Percentage of WBI cases administered as H-WBI as a function of year of treatment. There were 11, 14, 20, 20, 23, and 22 centers participating in the consortium in 2012, 2013, 2014, 2015, 2016, and 2017, respectively.

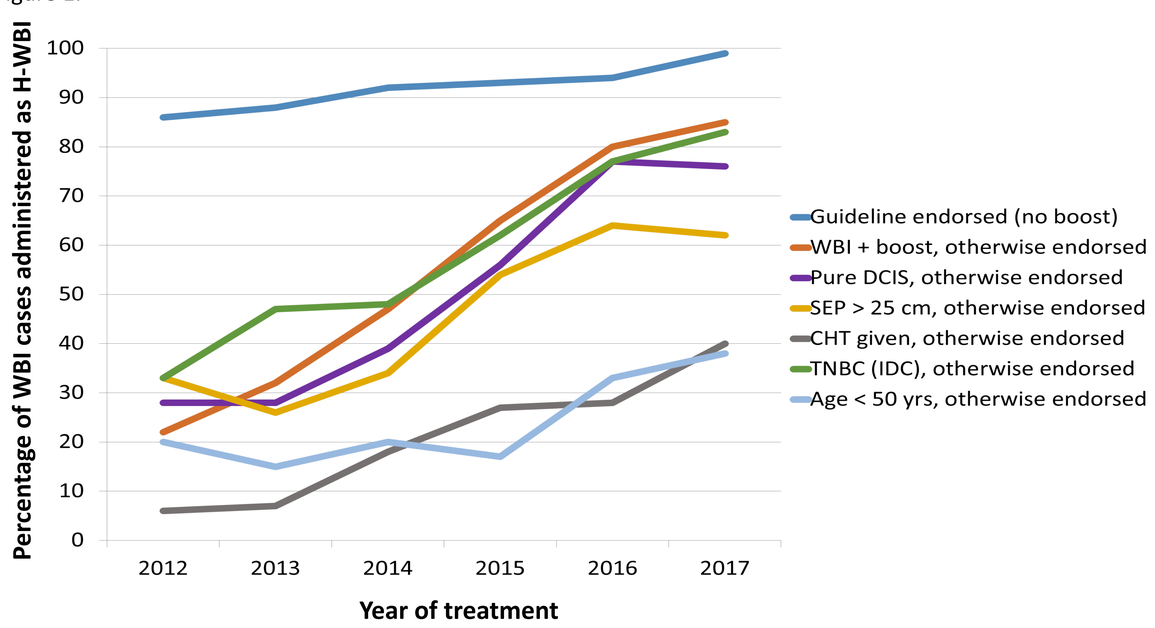
RESULTS

- H-WBI mostly comprised 42.56 Gy in 16 fxns (80%) and 40 Gy in 15 fxns (10%) with a boost of 10-10.64 Gy in 4 fxns (51%), 10 Gy in 5 fxns (31%), or 12 Gy in 6 fxns (8%) in 88% (2012) and 81% (2017) of cases
- H-WBI use increased for all patient subsets; was independent of laterality, receptor status, and histology; and was more modest for young patients and those receiving CHT (Table 1 and Figure 1)

Table 1

	Proportion of pts receiving H-WBI (% ± 95% CI)	
	2012	2017
All patients, guideline endorsed (no boost)	86%±14%	99%±2%
Boost, otherwise endorsed	22%±7%	85%±5%
Pure DCIS, otherwise endorsed	28%±10%	76%±6%
SEP > 25 cm, otherwise endorsed	33%±12%	61%±9%
Received CHT, otherwise endorsed	6%±11%	40%±21%
Age < 50 yrs, otherwise endorsed	20%±35%	38%±34%
TNBC (IDC), otherwise endorsed	33%±27%	83%±20%

Figure 1.



SUMMARY / CONCLUSION

- H-WBI use increased over the last 5 yrs in all patient subsets, albeit with less frequency in those who did not meet all 2011 guideline criteria, particularly in patients who received CHT and those younger than 50 years
- While the updated 2018 ASTRO consensus guidelines for the appropriateness of H-WBI are less restrictive[4], further analysis regarding H-WBI in various patient subgroups is warranted

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