Results: The median age of the patients was 53 years (32-75). Breast-conserving surgery: 72%; Surgery of the axila was lymphadenectomy in 50% and sentinel node biopsy in 50%. Tumor size (TNM): T1: 50%, T2: 40%, T3: 5%, T4: 5%; positive axillary nodes were found in 50%. Acute skin reactions (RTOG toxicity criteria): G0: 50%, G1: 42.5%, G2: 4.5%, G3: 0%; there was no G4 toxicity. There were no acute adverse cosmetic results (assessed in agreement with the Harvard criteria).

Conclusions: The explored hypofractionated radiotherapeutic approach with VMAT and SIB seems to be feasible providing consistent clinical results with excellent short-to-medium-term toxicity profile. However longer follow-up is required with a major number of patients to assess long-term outcomes.

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Axillary coverage by whole breast irradiation in 1 to 2 positive sentinel lymph nodes breast cancer patients

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Purpose/Objective: The possibility of providing a tumoricidal dose to sentinel lymph nodes (SLNs) and I axillary level areas by standard tangential fields, designed to cover whole breast parenchyma, is controversial. Aim of our analysis is to evaluate the dosimetric coverage of the I and II axillary levels by standard whole breast irradiation in 1 to 2 positive sentinel lymph nodes patients not submitted to axillary lymph nodes dissection (ALND), and to compare the lymph nodes areas coverage obtained with standard 3D tangential RT, static and volumetric intensity modulated radiotherapy (IMRT).

Materials and Methods: Patients with 1 to 2 positive SLNs undergoing breast conserving therapy, without ALND, were included in the analysis. For each patient a simulation CT scan was acquired Axillary level I, II lymph node anatomic volumes were defined on the CT scan by the same radiation oncologist according to RTDG contouring atlas, in order to reduce interobserver variability. For each patient three treatment plans were performed: a 3D conventional tangential plan, a static IMRT plan and a volumetric IMRT, designed to encompass the entire breast parenchyma. The axillary level I and II volumes receiving 90% and 95%(V90, V95) of the whole breast prescribed dose were evaluated. Dose-volume histograms were compared by means of the Friedman test.

Results: Ten patients were enrolled. All defined breast volumes received >95% of the prescribed dose with the three techniques. Median for the I axillary level was 26.4% (range 4.7-61.3) for 3D plans, 8.6% (range 0.64 -19.1%) for static IMRT plan and 2.6% (range 0.4-4.7%) for volumetric IMRT plans (p<0.001). Median V95% for the II axillary level was 5.4% (range 0-14.6%), 1.9% (range 0 -15%), and 2.6% (range 0-4.7%) for 3D, static IMRT and volumetric IMRT, respectively (p<0.001). Median V90% for the I axillary level was 39.7% (range 17.8-71.5%), 9.5% (range 1.3 -27.1%), and 6% (range 1.3-11.4%) for 3D, static IMRT and volumetric IMRT, respectively (p<0.001).

Conclusions: Results of our analysis show that standard 3D tangential whole breast irradiation in 1 to 2 positive SLNs patients, treated by BCT without ALND, failed to deliver a therapeutic dose to the I and II axillary levels I. The coverage is even lower using static and volumetric IMRT techniques.