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PATTERNS OF POST-OPERATIVE IRRADIATION IN BREAST CANCER PATIENTS SUBMITTED TO NEOADJUVANT CHEMOTHERAPY

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Introduction: The neoadjuvant chemotherapy (NAC) approach can expressively influence radiation therapy indications after breast surgery by theoretically altering the loco-regional relapse risk in accordance with clinical stage features. Precisely, it could reduce this risk for a subgroup of patients with locally advanced breast cancer who achieved a good pathologic response after NAC. Thus, this might raise clinical questions of whether these more favorable subset of patients do benefit from PORT therapy or whether radiation should be performed only for patients with gross residual tumor after neoadjuvant chemotherapy. In addition, there are many uncertainties about the most appropriate radiation therapy fields in patients who received NAC given that all recommendations are usually based on initial clinical and pathological aspects.

Objectives: The aim of the current study was to assess the radiation therapy fields and survival outcomes in breast cancer patients who underwent (NAC) followed by surgery. **Methods:** We performed a retrospective analysis of all non-metastatic breast cancer patients treated between 2008 and 2014 at our institution, who received NAC and post-operative radiation therapy (PORT). **Results:** A total of 528 women were included of whom 396 were submitted to mastectomy or adenomastectomy. Most (92.8%) of the patients had locally advanced disease (clinical stage IIB to IIIC). All patients underwent irradiation for breast or chest wall. Most patients received radiation therapy of the supraclavicular and axillary (levels II and III) nodes (87.1 and 86.4% for breast-conserving surgery and 95.1 and 93.8% for mastectomy / adenomastectomy, respectively). Irradiation of level I axillary and internal mammary nodes was uncommon. The most common radiation therapy schedule was the conventional dose of 50Gy to 50.4Gy in 25 to 28 fractions. The mean overall survival was 66.6 months and the mean disease-free survival was 54.6 months. **Conclusions:** After NAC, most patients received irradiation of the breast/chest wall and axillary and supraclavicular nodes. Indications were based on initial disease presentation associated with relapse risk factors. In this setting, post-operative radiation therapy to breast/chest wall with or without regional nodal irradiation was effective management that is associated with acceptable survival rates.