TPS630 **Poster Session**

Eliminating breast surgery for triple negative or HR-/HER2+ breast cancer patients with clinical complete response to combined neoadjuvant chemotherapy and neoadjuvant radiotherapy: A multicenter, phase 2 trial (EBCS).

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Background: Recent advancements in immunotherapy and targeted therapies have significantly improved pathological complete response (pCR) rates in patients with triple-negative breast cancer (TNBC) and HER2-positive breast cancer undergoing neoadjuvant chemotherapy. The combination of neoadjuvant chemotherapy with radiotherapy may further enhance pCR rates through synergistic effects, prompting a reevaluation of traditional surgical approaches. The Sound trial demonstrated that omitting sentinel lymph node biopsy in node-negative patients is safe and feasible, supporting further de-escalation of surgical interventions. For patients achieving pCR, the necessity of breast and axillary surgery is increasingly questioned, given the potential to reduce surgical morbidity without compromising outcomes. Our study investigates whether omitting surgery in patients with pCR confirmed by vacuum-assisted core biopsy (VACB) yields non-inferior 5-year event-free survival (EFS) compared to standard surgery. **Methods:** This multicenter, phase 2 trial enrolls patients aged ≥18 years with untreated cT1-2 N0 M0 TNBC or HER2-positive breast cancer and ECOG 0-1. Patients receive four cycles of TCb (HP)* neoadjuvant chemotherapy, followed by neoadjuvantradiotherapy starting from the fifth cycle (50 Gy in 25 fractions + 14 Gy boost in 7 fractions). The TCb (HP)* regimen is tailored based on tumor subtype: triple-negative patients receive TCb (nab-paclitaxel + carboplatin) with or without immunotherapy (pembrolizumab), while HER2-positive patients receive TCbHP (nab-paclitaxel + carboplatin + trastuzumab and pertuzumab) regimens. After six cycles, patients undergo MRI. If MRI suggests complete clinical response (cCR), VACB of the primary lesion is performed under ultrasound/stereotactic guidance (6 cores, 7-10 G needle). If no residual tumor or atypical cells are found, breast and axillary surgery are omitted. Patients receive indicated immunotherapy/targeted therapy and are followed every 6 months for 5 years. The primary endpoint is 5-year EFS. Secondary endpoints include breast pCR rate (bpCR: ypT0), overall survival (OS), patient-reported outcomes (PROs), and safety. TheThis trial is designed to determine whether the 5-year EFS of patients who avoid breast surgery after pCR confirmed by VACB is non-inferior to that of patients who undergo standard breast surgery with confirmed pCR. Based on a 90.3% 5-year EFS in pCR patients (cT1-2N0 TNBC/HER2+), the trial uses a one-sided test (non-inferiority margin: 5%; power: 80%; α: 0.1) to determine if omitting surgery is non-inferior. 185 patients are needed to omit surgery. Assuming 80% pCR and 10% dropout, 256 participants will be enrolled. The trail is actively recruiting. Clinical trial information: NCT06498154. Research Sponsor: None.