

Better Timing of Surgical Axillary Staging for HER2-overexpressed Breast Cancer: Before or After Neoadjuvant Chemotherapy (NAC)

Ying Zhang (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Miao Mo (Clinical Statistics Center, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Jian-wei Li (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Ying Zhou (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Jiong Wu (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Ke-da Yu (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Zhen-zhou Shen (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Zhi-min Shao (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China), Guang-yu Liu (Department of Breast Surgery, Fudan University Shanghai Cancer Center and Department of Oncology, Shanghai Medical College, Fudan University, P.R. China)

BACKGROUND: Neoadjuvant chemotherapy (NAC) with trastuzumab has been widely applied in locally advanced HER2-overexpressed breast cancer. However, whether to perform surgical axillary staging before or after NAC remains uncertain.

HYPOTHESIS: Axillary lymph node (ALN) status after NAC has better predictive value, especially when trastuzumab is combined. We highly recommend the application of surgical axillary staging after NAC in HER2-overexpressed breast cancer patients.

METHODS: From January 2008 to December 2012, 259 patients receiving NAC (NAC group) with clinical stage II-III, invasive and HER2-overexpressed breast cancers were collected from two clinical trials (NCT01203267 and NCT01170143) conducted at our center. In addition, 576 eligible patients who were treated with surgery initially followed by adjuvant chemotherapy (AC group) were included for comparison. Disease free survival (DFS) was the primary outcome. Survival analyses were compared according to different ALN status. Univariate and multivariate analyses of the predictive value of ALN were conducted in all and among subgroups stratified by trastuzumab use.

RESULTS: The median follow-up time was 47 months (IQR: 35-61). ALN status was an independent predictive factor ($p < 0.001$) for DFS in both groups. Patients with malignancy-free ALNs after NAC showed similarly good DFS compared with those who presented with negative ALNs in the AC group ($p = 0.191$), whereas those who remained positive ALN(s) after NAC showed the worst ($p < 0.001$). Adjusted hazard ratio (HR) ALN was 6.66 ($p < 0.001$) and 3.35 ($p = 0.002$) in the NAC and the AC group, respectively. In combination of trastuzumab, the HR of ALN was still prominent in the NAC group (HR = 5.88, $p < 0.001$), whereas of no significance in the AC group ($p = 0.186$).

Figure 1 Survival curves for DFS and OS in the whole population (A1&A2) and according to different axillary lymph node (ALN) status between the NAC and AC groups (B1&B2).

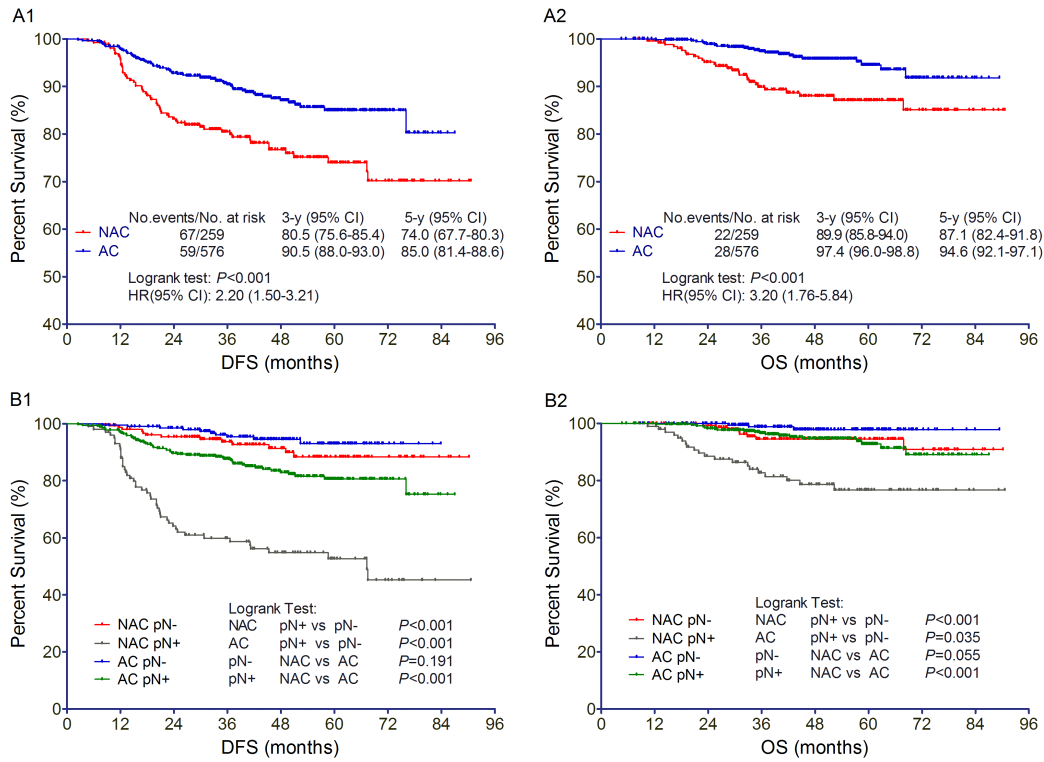


Figure 2 Survival curves for patients using trastuzumab and for ER-poor patients in the NAC and AC groups.

