

ASO Author Reflections: Changes in Use of Neoadjuvant Chemotherapy Over Time—Highest Rates of Use Now in Triple-Negative and HER2+ Disease

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PAST

Initially, neoadjuvant chemotherapy (NAC) was predominantly used in locally advanced disease.^{1,2} However, NAC is now considered for any patient who would be recommended adjuvant chemotherapy based on clinical and histological examination at diagnosis.² NAC may downstage disease in both the breast and axilla, as well as allow the assessment of in vivo response to therapy.^{1,2} While tumor size and nodal involvement were the dominant factors in considering NAC initially, currently tumor biology is a key factor. Response rates to NAC are highest in HER2+ disease and in triple-negative breast cancer.³ Additionally, neoadjuvant endocrine therapy is increasingly considered for hormone receptor-positive disease. Our hypothesis was that use of NAC had changed over time with higher use in triple-negative and HER2+ disease than in hormone receptor (HR)+/HER2– disease.

PRESENT

Current trends in NAC use in the United States were shown by evaluation of the National Cancer Database from 2010–2015, which demonstrated that approximately 20%

of patients who received chemotherapy received it upfront in the neoadjuvant setting. Throughout the study period, the overall proportion of NAC significantly increased from 15.7 to 26.0%, $p < 0.001$. The greatest increases in NAC utilization were seen among triple-negative breast cancers (TNBC; 19.5–33.7%) and HER2+ (HR–/HER2+ 21.5–39.8%; HR+/HER2+ 17.0–33.7%) tumors. HR+/HER2– tumors also had a statistically significant increase in use, but this increase was less dramatic (13.0–16.8%), and the NAC use in recent years was significantly lower than in other subtypes ($p < 0.001$).⁴ The use of NAC has changed over recent years and is much higher in triple-negative and HER2+ disease than HR+/HER2– disease.

FUTURE

The treatment of breast cancer continues to evolve and is becoming more individualized.⁵ The highest use of NAC is in the biologically aggressive subtypes of triple-negative and HER2+ disease. Its use in these tumors will likely continue to increase in the upcoming years with ongoing advances in drug development. In patients with HR+/HER2– disease, neoadjuvant endocrine use is becoming more common. Additional work and results from ongoing studies are needed to identify which patients with HR+/HER2– disease benefit from chemotherapy and which patients can be managed without chemotherapy and may benefit from other advancements, such as immunotherapy, CDK 4/6 inhibitors, or other modern therapies.

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