

Cardiotoxicity during neoadjuvant treatment of HER2-positive breast cancer – a case series

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Introduction: Neoadjuvant protocols are vital for improving outcomes for patients in HER2-positive breast cancer by reducing tumor mass and micrometastases before surgery. Dual HER2 receptor blockade, using trastuzumab and pertuzumab, is the gold standard in this context and is generally considered safe.¹⁻³ However, cardiotoxicity remains a serious complication impacting subsequent treatment, delaying surgery and necessitating adjustments to oncologic therapy.

Case series: We present a series of six patients with HER2-positive breast cancer who developed cardiotoxicity during neoadjuvant therapy. The average age was 62.43 years, and all were treated with standard chemotherapy consisting of trastuzumab and pertuzumab. The mean time from chemotherapy initiation to cardiotoxicity onset was 176 days, while the average time to surgery was 503 days, significantly extending the time required for surgery. The average decrease in left ventricular ejection fraction (LVEF) was 27%, with one patient showing no decrease. All patients developed symptomatic heart failure, necessitating hospitalization in 66.7% of cases. Despite initial severe cardiotoxicity, all patients showed significant clinical improvement following the implementation of optimal heart failure therapy. Although LVEF improved in all cases, complete recovery of systolic function was not achieved. Additionally, three more cases of significant cardiotoxicity were noted in patients who received double anti-HER neoadjuvant therapy followed by adjuvant treatment after surgery.

Conclusion: While dual anti-HER blockade shows efficacy and safety in neoadjuvant protocols, our case series highlights the risk of severe cardiotoxicity, which can delay surgical treatment. This delay may negatively impact oncologic outcomes and prognosis. Careful cardiac monitoring during neoadjuvant therapy is essential for early detection and management of complications, ultimately improving overall survival.

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LITERATURE

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