

## The Role of Molecular Subtypes in Pathological Response to Neoadjuvant Chemotherapy and Clinical Outcomes in Patients with Locally Advanced Breast Cancer

**Authors :** Aliakbar Hafezi, Jalal Taherian, Mahsa Elahi, Jamshid Abedi

**Abstract :** Background: Patients with breast cancer with different molecular subtypes may have different pathological responses to neoadjuvant chemotherapy (NAC). The aim of this study was to evaluate the pathological response to NAC in patients with locally advanced breast cancer based on molecular subtypes. Method: In this retrospective cohort study, 210 female patients with breast cancer candidate for NAC referred to the radiation oncology departments in southern Iran between August 2019 and September 2024 were evaluated in terms of pathologic complete response (pCR) based on immunohistochemical molecular markers (estrogen and progesterone receptors, Her-2/neu and Ki-67), overall survival (OS) and disease-free survival (DFS). Results: The mean age of the patients was  $38.22 \pm 10.34$  years, and 68 patients (32.4%) had a positive family history of breast cancer. The pCR rate was 17.6% (37 patients), which in the subtypes of luminal A, luminal B, Her-2/neu positive and triple negative was 7.7%, 16.9%, 26.5% and 21.05%, respectively. Patients with pCR had significantly better OS (78.4% vs. 49.1%,  $P = 0.014$ ) and DFS (83.8% vs. 51.4%,  $P = 0.020$ ) than patients with partial/no pathological response. Conclusion: It seems that the molecular subtype plays a decisive role in the clinical outcome and the pathological response to NAC in patients with locally advanced breast cancer.

**Keywords :** locally advanced breast cancer, neoadjuvant chemotherapy, pathologic complete response, clinical outcomes

**Conference Title :** ICO 2025 : International Conference on Oncology

**Conference Location :** Toronto, Canada

**Conference Dates :** November 29-30, 2025