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# Disparity in access to anti-HER2 therapies in neoadjuvant chemotherapy: a prognostic analysis based on real world data between public and private systems in Brazil

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**Objective:** The aim of this study was to evaluate the impact of disparities in the use of trastuzumab in the neoadjuvant chemotherapy (NAC) within the Brazilian public health system on pathological complete response (pCR), overall survival (OS), and disease-free survival (DFS). **Methodology:** A retrospective, multicenter cohort study was conducted with female patients older than 18 years, diagnosed with non-metastatic, HER2 positive breast cancer, who underwent NAC. The study took place at the Hospital Pérola Byington (PEROLA), serving the Unified Health System, and the Hospital do Servidor Público Estadual (HSPE), catering to public employees of the State of São Paulo, thus considered a private facility. pCR was defined as the absence of any residual invasive or *in situ* tumors in the breast and axillary nodes. Being an exploratory study based on real-world data (RWD), no confirmatory hypotheses were formulated; hence, there was no need for adjustments for multiple comparisons. OS and DFS were estimated using the Kaplan-Meier method over a period of 5 years. **Results:** Between 2011 and 2020, 381 patients at PEROLA and 78 patients at HSPE were treated with NAC for HER2-positive BC. Access to Trastuzumab was higher at HSPE than at PEROLA (83.4% vs. 60.0%,  $p < 0.001$ ). The rate of pCR in patients who used Trastuzumab was significantly higher in both institutions, PEROLA (54.3% vs. 26.4%,  $p < 0.0001$ ) and at HSPE (52.7% vs. 26.4%,  $p < 0.0001$ ). The OS of HER2+ patients with pCR at HSPE was higher than at PEROLA with a significant difference (80% vs. 61% log-rank  $p < 0.0001$ ), and the DFS was also superior at HSPE with a significant difference (89% vs. 67% with log-rank  $p < 0.0001$ ). **Conclusion:** We can demonstrate, with RWD, that the disparity in access to trastuzumab in NAC between the public and private healthcare systems is negatively impacting clinical outcomes and patient survival, highlighting the need for measures to ensure equity in cancer treatment. Addressing this issue is crucial for improving oncological care and the quality of life for patients.

**Keywords:** breast cancer; neoadjuvant chemotherapy; disparity; equity; trastuzumab; overall survival; disease-free survival.