

<https://doi.org/10.29289/259453942025V36S10934>

## 934 – Improved survival in breast cancer over two decades in southern Brazil: a retrospective cohort study of 2,247 patients

Nathalia Cruz Costa, Brenda Carrera Merlini, Julia Lipert Pazzim, Andréa Pires Souto Damin

<sup>1</sup>Hospital de Clínicas de Porto Alegre - Porto Alegre (RS), Brazil.

<sup>2</sup>Universidade Federal do Rio Grande do Sul - Porto Alegre (RS), Brazil.

**Introduction:** Breast cancer remains the most prevalent malignancy and the leading cause of cancer-related mortality among women in Brazil. Over the past two decades, the healthcare landscape has been transformed by advances in diagnostic approaches and personalized therapies, highlighting the need for longitudinal evaluations of the impact of these changes on clinical outcomes.

**Objective:** To assess temporal trends in overall survival and to identify prognostic factors in a cohort of breast cancer patients over a 20-year period.

**Methods:** This retrospective cohort study included 2,247 women diagnosed between 2002 and 2022 at a reference center in Southern Brazil. Patients were stratified by decade of diagnosis: Period 1 (2002–2011) and Period 2 (2012–2022). Overall survival was estimated using the Kaplan–Meier method and compared using the log-rank test. Prognostic factors were analyzed using a multivariate Cox proportional hazards model (Statistical Package for the Social Sciences, version 18.0), with statistical significance set at  $p < 0.05$ .

**Results:** A significant improvement in overall survival was observed among patients diagnosed in Period 2 compared to Period 1 ( $p < 0.001$ ). In the multivariate analysis, disease recurrence emerged as the strongest predictor of poor prognosis (hazard ratio [HR] 10.214; 95% confidence interval [CI] 7.714–13.524;  $p < 0.001$ ). Lymph node involvement (HR 1.045 per node; 95%CI 1.032–1.059;  $p < 0.001$ ), human epidermal growth factor receptor 2 (HER2)-positive status (HR 1.610; 95%CI 1.147–2.261;  $p = 0.006$ ), and absence of hormone receptors (HR 1.616; 95%CI 1.028–2.541;  $p = 0.038$ ) remained independently associated with worse survival in the adjusted model.

**Conclusion:** The findings demonstrate a favorable evolution in breast cancer prognosis over the past two decades. The improvement in overall survival reflects the positive impact of advances in detection strategies and therapeutic approaches. However, disease recurrence and aggressive biological profiles remain critical challenges, reinforcing the need for rigorous monitoring and access to targeted therapies.

**Ethics:** Research Ethics Committee Approval (CAAE 53405621.0.0000.5327).

**Funding:** Coordination for the Improvement of Higher Education Personnel (CAPES), Process No. 88887.503692/2020-00; Hospital de Clínicas de Porto Alegre, Research and Events Incentive Fund (FIPE), Project No. 2021-0546.

**Keywords:** breast neoplasms; survival analysis.