

PRESENTATION: ORAL PRESENTATION (GENERAL SESSION)

<https://doi.org/10.29289/259453942025V36S10933>

933 – Impact of metabolic syndrome on survival outcomes in breast cancer: real-world evidence from a tertiary cohort

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Introduction: Metabolic syndrome (MetS) has been increasingly recognized as a potential modifier of cancer outcomes. However, its impact on survival in breast cancer patients remains uncertain, particularly in real-world populations and across different molecular subtypes.

Objective: To evaluate the association between MetS and survival outcomes in breast cancer patients using real-world data.

Methods: This retrospective cohort study included 1,962 women with histologically confirmed invasive breast cancer treated with curative intent between 2014 and 2024 at a tertiary public center. MetS was defined according to established international criteria. Overall survival (OS) and breast cancer-specific survival (BCSS) were estimated using the Kaplan–Meier method and compared using the log-rank test. Multivariable Cox proportional hazards models were applied to adjust for age, clinical stage, molecular subtype, and treatment modalities.

Results: MetS was identified in 486 patients (24.8%). Patients with MetS were older and had significantly higher body mass index and prevalence of cardiometabolic comorbidities, including hypertension, dyslipidemia, and glucose intolerance (all $p < 0.001$). After a median follow-up of 96 months, MetS was associated with significantly worse survival outcomes. Mean OS was 112.4 months in the MetS group compared with 142.8 months in patients without MetS (log-rank $p = 0.012$). Similarly, BCSS was significantly reduced in the MetS group (115.1 vs. 145.3 months; log-rank $p = 0.018$). In multivariable analysis, MetS remained independently associated with worse OS (hazard ratio [HR] 1.42; 95% confidence interval [CI] 1.08–1.86; $p = 0.011$) and BCSS (HR 1.38; 95%CI 1.01–1.88; $p = 0.042$), without interaction with molecular subtype.

Conclusion: MetS is independently associated with worse survival outcomes in breast cancer in a real-world setting, regardless of tumor molecular subtype. These findings support the integration of metabolic assessment into oncologic risk stratification and management.

Ethics: The study was approved by the institutional ethics committee and registered in the Plataforma Brazil (CAAE 61004522.6.0000.5463).

Keywords: breast neoplasms; metabolic syndrome; survival analysis; prognosis; cohort studies.