The overlapping burden: Prevalence of comorbidities in cancer survivorship

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ABSTRACT

Introduction: The prevalence of comorbidities among cancer survivors is rising. However, it is unclear whether specific comorbidity patterns are associated with treatment disparities and impaired functional status. We identified comorbidity patterns and assessed their association with treatment receipt and functional status among individuals with breast and colorectal cancer. **Materials and Methods:** This cross-sectional study analyzed data from three cancer cohorts using validated questionnaires and medical records. Demographics, comorbidities, disease- and treatment-related characteristics were collected. Latent class analysis (LCA) identified comorbidity patterns based on 20 disease categories. Multivariable logistic regression assessed associations between comorbidity classes with treatment receipt and functional status. **Results:** Among 1,117 cancer survivors, 62.2% had ≥1 comorbidity. LCA identified three comorbidity patterns: low, cardiometabolic, and multisystem. The multisystem group had significantly poorer functional status (aOR: 25.37, 95%CI: 5.88-109.43) and lower odds of receiving chemotherapy (aOR: 0.08, 95%CI: 0.08, 95%CI: 0.04 – 0.19), radiotherapy (aOR: 0.33, 95%CI: 0.14-0.74), and anti-HER2 therapy (aOR: 0.09, 95%CI: 0.02-0.50), but higher odds of receiving immunotherapy (aOR: 123.68, 95%CI 40.69 – 375.92). The cardiometabolic group showed no significant treatment differences. LCA showed improved model fit for treatment and functional status relative to the modified Charlson Comorbidity Index (mCCI). **Conclusion:** This study highlights the substantial comorbidity burden among cancer survivors and demonstrates that LCA provides more refined risk stratification than mCCI. The LCA-defined multisystem group had significantly reduced treatment receipt and poorer functional outcomes, unlike the cardiometabolic group, despite similar mCCI scores. These findings support the use of LCA to identify clinically vulnerable subgroups and inform treatment decisions. While results from breast and colorectal cancers may inform broader care, generalization to rarer cancers requires caution. Future research should integrate comorbidity classes into treatment planning to better support medically complex cancer populations.

Keywords: Comorbidity, cancer, cardiometabolic