

Association of Comorbidity with Recurrence and Survival Outcomes in Patients with Colorectal Cancer

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Background and Aim

Colorectal cancer (CRC) outcomes are strongly influenced by patient comorbidities, yet their role in recurrence and survival remains incompletely defined. This study evaluated the effect of comorbid conditions on time to recurrence and death in a large cohort of CRC patients.

Methods

Survival probabilities at 1, 3, and 5 years were estimated, and a semi-competing risks framework was applied to jointly model recurrence and death for patients diagnosed with all stages of CRC. Multivariable analyses adjusted for demographic, tumour, and treatment-related factors, including receipt of (adjuvant) chemotherapy.

Results

At 1, 3, and 5 years, overall survival (mortality outcome) was 95%, 84%, and 76%. Cardiovascular comorbidities strongly worsened mortality: congestive heart failure nearly tripled risk (HR 2.89, 95% CI 2.04–3.97), arrhythmia doubled risk (HR 2.26, 95% CI 1.70–2.72), while ischaemic heart disease (HR 1.37, 95% CI 1.18–1.61), peripheral vascular disease (HR 1.15, 95% CI 1.05–2.03), and hypertension (HR 1.45, 95% CI 1.17–1.51) were similarly associated with poorer survival. Chemotherapy (HR 0.61, 95% CI 0.47–0.91) and neoadjuvant therapy (HR 0.49, 95% CI 0.33–0.68) were protective against mortality across subgroups. For mortality after recurrence, arrhythmia independently increased risk (HR 1.71, 95% CI 1.14–2.59). For recurrence, rates at 1, 3, and 5 years were 94%, 83%, and 78%, with hypertension significantly increasing risk (HR 1.21, 95% CI 1.08–1.26).

Conclusion

In summary, comorbidities are strongly correlated with recurrence and mortality risk in CRC patients. Cardiovascular conditions and hypertension were particularly detrimental, whereas appropriate systemic therapy improved survival. These findings highlight the importance of integrating comorbidity management into prognostication models and cancer care, while also underscoring the need for careful patient selection to ensure that treatment strategies are tailored appropriately for individuals with significant comorbid conditions.

Keywords

Colorectal cancer; comorbidity; recurrence; mortality; survival outcomes; cardiovascular disease; chronic renal failure

References

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