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"The Effect of Radiation Treatment on Survival of Hodgkin's Lymphoma: Analysis of SEER Data (2004-2020)"

Background:

Research has demonstrated that Hodgkin's Lymphoma (HL) is curable in up to 80% of patients due to advances in chemotherapy and radiation therapy. One 1983-2011 retrospective study found that radiation therapy significantly improved HL patients' overall survival (OS). Factors like old age, male, extranodal disease, African American, and non-Hispanic were associated with worse survival rates. There has been a decline in radiation treatment due to severe side effects, including heart disease and secondary malignancy. This study aims to assess if radiation therapy (RT) remains beneficial and identify prognostic factors in a more recent patient cohort.

Methods:

We used the SEER Research PLUS data to identify patients diagnosed with stage I-IV HL in 2004-2020 who received radiation therapy and survived at least 6 months excluding. Age at diagnosis, sex, race/ethnicity, year of diagnosis, median income, presence of extra-nodal sites, usage of chemotherapy and radiation, and staging were analyzed as covariates. Multivariable Cox hazard proportional regression analysis and Kaplan-Meier (KM) were employed.

Results:

Of the 28,335 eligible HL patients, the risk of overall death was lower for patients receiving RT than those without RT for stage I (AHR: 0.645; CI: 0.549-0.758) and stage II (AHR: 0.712; CI: 0.699-0.619) HL in the adjusted model, and the KM curve further suggested that RT increased 15-year overall survival ($p<0.05$). However, RT did not significantly reduce the OS for stage III-IV HL patients. Additionally, those with higher income (> $75,000), recent diagnosis years (2010-2020 vs. 2004-2009), chemotherapy, non-black race, and female had a low risk of overall deaths than their counterparts in the adjusted model.

Conclusion:

Stage I and II HL patients receiving RT have a low risk of overall death and high long-term survival than those without RT. Social demographic factors also affect the outcome of HL patients. Further studies can examine why the same increased survivability was not seen in patients with stage III or IV.