Title: Stereotactic Body Radiation Therapy (SBRT) to Sites of Extracranial Metastatic Cancer and Factors Associated with Short Interval to Death After Treatment

A modern technique, stereotactic body radiation therapy (SBRT), delivers high doses of radiation to target sites (tumor + at-risk tissues) while minimizing toxicity to healthy tissues. To better understand SBRT's utilization among metastatic cancer patients, factors linked to short survival post-SBRT for extracranial metastases were evaluated.

Data was compiled from patients receiving SBRT at extracranial sites of metastatic cancer at UNC (2014-2022), focusing on demographics, disease, and treatments. Using descriptive statistics, we categorized SBRT events into two groups: those who did versus did not die within 180 days of SBRT. Chi-square, Fisher's exact test, and t-test compared these groups, and Kaplan-Meier survival analysis and Cox regression were employed.

We identified 267 patients with 366 SBRT treatments. Of these, 11.7% died within 180 days post-SBRT. Before SBRT, 55.7% had prior radiation at the primary site, while 21.0% had a Karnofsky Performance Status (KPS) ≤70, contributing to 34.9% of short-interval deaths. At treatment, 34 SBRT cases had ≤3 progressing lesions, comprising 79.1% of short-interval deaths.

Analysis suggests multiple factors are associated with the duration of survival after treatment: low-performance status, progressing cancer, and prior radiation. These insights contextualize SBRT's use in palliative care, aiding in patient selection for future treatments. Next steps involve developing a prospective database for SBRT-treated metastatic patients and capturing patient-reported outcomes to refine management strategies.