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Abstract

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Health Inequities within Radiation Treatment after Neurosurgery

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Abstract

Purpose/Objective(s)

Brain metastases are the most frequent intracranial tumor type. Following surgical treatment of patients with brain metastases, about half of them will experience disease recurrence without adjuvant therapy. This relapse can be lowered with either whole brain radiation therapy (WBRT) or stereotactic radiosurgery (SRS). Unfortunately, rural patients often underutilize adjuvant therapy, despite radiosurgery having fewer acute and long-term side effects compared to WBRT alone. There are no published reports to inform radiation oncologists on how to improve the use of adjuvant therapy among metastatic brain cancer patients from underserved communities in Kentucky. Thus, there is a critical need to understand factors related to this disparity to improve disease prognosis in this population. We hypothesize differences in the use of adjuvant therapy are related to limited access to specialized care, lack of nurse navigators, and socioeconomic challenges among underserved populations, leading to poor disease prognosis.

Materials/Methods

We retrospectively identified patients with brain metastases who underwent surgical resection of 1-3 brain metastases between July 2018 to July 2023 at the University of Louisville Health Brown Cancer Center. We collected demographic, treatment type, and outcome data related to their follow-up and post-operative care (IRB 22.0796). To assess differences between categorical and quantitative data, we used the Fisher's exact test and the Wilcoxon sum rank test with a significance level of 0.05.

Results

A majority of the patients were middle-aged [mean = 61; range = 39-81], white (80% white, 20% black), 55% male, 65% urban residents, 55% overweight/obese, and 22.5% uninsured. Rural patients were more likely to lack health insurance than those from urban areas (27.3% vs 14.3%; p = 0.0307). Among patients who were scheduled for a radiation oncology appointment post-surgery, only 13.3% kept their appointment. Notably, Black patients received higher radiation fractions (p = 0.0139) and were more likely to reside near the Brown Cancer Center compared to White patients. Disparities in death from 1-year post surgery and brain failure were more prevalent among both rural patients (p = 0.0044) and those who lacked insurance (p =0.008) than patients who lived in urban areas or who had insurance, respectively. Lastly, none of the patients were assigned patient navigators.

Conclusion

Our findings suggest patients from rural areas could benefit from additional resources such as a nurse navigator to address patients' questions regarding the treatment process, ensure the patient meets with a radiation oncologist, and receive reminders to complete all prescribed radiation treatment post neurosurgery. Lastly, a nurse navigator can help patients secure needed health insurance, which will reduce financial barriers to adjuvant therapy and the burden of the disease, especially among rural KY residents.