and laser interstitial thermal therapy (LITT) are viable treatment options, but direct comparative data is scarce. We reviewed the literature to compare the two treatment strategies. METHODS: PubMed, EMBASE, Scopus, and Cochrane databases were searched. All studies of patients with RN from brain metastases treated with bevacizumab or LITT were included. Treatment outcomes were analyzed using indirect meta-analysis with random-effect modeling. RESULTS: Among the 18 studies included, 143 patients received bevacizumab and 148 underwent LITT. Both strategies were equally effective in providing post-treatment symptomatic improvement (P=0.187, I^2=54.8%), weaning off steroids (P=0.614, I^2=25.5%), and local lesion control (P=0.5, I^2=0%). The mean number of lesions per patient was not statistically significant among groups (P=0.624). Similarly, mean T1-contrast-enhancing pre-treatment volumes were not statistically different (P=0.582). Patterns of radiological responses differed at 6-month follow-ups, with rates of partial regression significantly higher in the bevacizumab group (P=0.001, I^2=88.9%), and stable disease significantly higher in the LITT group (P=0.002, I^2=81.9%). Survival rates were superior in the LITT cohort, and statistical significance was reached at 18 months (P=0.038, I^2=73.7%). Low rates of adverse events were reported in both groups (14.7% for bevacizumab and 12.2% for LITT). CONCLUSION: Bevacizumab and LITT can be safe and effective treatments for RN from brain metastases. Clinical and radiological outcomes are mostly comparable, but LITT may relate to superior survival benefits in select patients. Further studies are required to identify the best patient candidates for each treatment group.

RADI-15. RADIOTHERANOSTIC APPROACH IN BRAIN TUMOR

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PURPOSE: The aim of this study is feasibility and potential treatment of targeted radionuclide theranostic approach for patients with brain tumors. METHODS: For the period 2020–2021, 6 child and adult patients who had been diagnosed with brain tumors were treated using theranostic approach followed by refractory to conventional therapy. Two patients that were presented with HER-2 positive, ER and PR negative breast cancer and brain metastases as well as a history of several cycles of chemotherapy sessions and radiotherapy using gamma knife were treated with 177Lu-Trastuzumab (Herceptin). Three other patients with primary brain tumor underwent peptide receptor radionuclide therapy (PRRT) with 177Lu-DOTATATE. The last case was a patient with refractory primary cerebral lymphoma to standard therapy with confirmed CD20-positive B-cell lymphoma who underwent 177Lu-Rituximab. RESULTS: A two women with HER-2 positive breast cancer and brain metastasis underwent two cycles of 177Lu-trastuzumab. Post-therapy assessment showed some improvement. Next, a man with a high-grade glioma tumor in the left frontal lobe with history of debunking surgery in combination with chemoradiation received 177Lu-DOTATATE that resulted in a short-term stable situation. Another patient presented with a right cerebellopontine angle meningioma underwent PRRT with 177Lu-DOTATATE. She had a stable disease with some improvement in the clinical status. Also, a girl with an astrocytoma in suprasellar cistern underwent 2 cycles of 177Lu-DOTATATE. The complete response was designed. Finally, a patient with refractory primary cerebral lymphoma received 177Lu-Rituximab. CONCLUSION: Nuclear oncology in the field of neuro-oncology (neuroradiotheranostics) has been toward a personalized approach, effective and safe therapy. These preliminary studies might demonstrate feasibility and therapeutic potential of theranostics in patients with primary, relapsed or metastasis brain tumors. Further studies preferentially well-designed multicenter international clinical trial is warranted.

RADI-16. EFFICACY OF WBRT AMONG THE SUB-TYPES OF METASTATIC BREAST CANCER

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OBJECTIVES: To understand the effect of Whole Brain Radiation (WBRT) in terms of Age, Neurological performance, Radiological Improvement and the Overall Survival. METHODS: 34 Patients [Median Age: 45 years (31- 65)] with Metastatic Breast Carcinoma who presented with Brain metastasis to the Department of Radiation Oncology at Kidwai Memorial Institute of Oncology and subjected to Whole Brain Radiotherapy/ Focal RT were taken into the study. The efficacy of WBRT was assessed among the four subtypes of MBC. RESULTS: 39% of the patients belonged to Luminal A, 25%, 22% and 14% belonged to Luminal B, Her2 amplified and Basal respectively. Patients under Luminal A, presented with brain metastases by 25 months after the diagnosis of the primary. 60% presented with single lesion, amenable to resection and 58% underwent surgery followed by WBRT and OS fared better as compared to patients with WBRT alone with no distant recurrences on imaging and improvement in KPS. Patients with Luminal B/ HER2 amplified subgroup had predominantly oligometastatic lesions (65%), presented with brain metastases at 15 months after diagnosis of Carcinoma Breast,18% received Herceptin and Lapatinib and 33% and 22% received Herceptin and Lapatinib alone. OS was superior over WBRT alone with exaggerated radiation necrosis in those who took concurrent biological therapy and RT.In patients with Basal subtype,75%had multiple metastatic brain lesions, presented with symptoms by 10 months of diagnosis of the primary with poor KPS and OS remained poor despite WBRT. CONCLUSIONS: Lesions being amenable for surgery, focal RT to post op cavity alone may be considered in patients with Luminal A. WBRT plus boost for those unfit for surgery. Addition of TKI +/- oral chemo for all patients with Luminal B and HER 2 amplified to Focal RT or WBRT. Triple Negative patients present with poor KPS can be considered for BSC/WBRT on case basis.

RADI-17. OUTCOMES FOR PATIENTS WITH TRIPLE NEGATIVE BREAST CANCER TREATED WITH UPFRONT STEREOTACTIC RADIOSURGERY FOR BRAIN METASTASES

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BACKGROUND: Triple-negative breast cancer (TNBC) is an aggressive subtype with high propensity of developing brain metastases (BM). Clinical outcomes and prognostic factors after stereotactic radiosurgery (SRS) for BM were not well defined. METHODS: We identified 57 consecutive TNBC patients (pts) treated with single fraction SRS for BM during 05/2008–04/2018. Overall survival (OS) from BM diagnosis and freedom from BM progression (FFBMP) after initial SRS were evaluated. BM progression was defined as local and/or distant brain failure (LBF, DBF) after SRS. Kaplan-Meier analyses and Cox proportional hazard regression were used to estimate survival outcomes and identify prognostic factors. RESULTS: The median time to BM development from TNBC diagnosis was 23.7 months (mo) (range 0.7–271.1). Median OS was 13.1 mo (95%CI 8.0–19.5). On univariate analysis, Karnofsky performance score (KPS) >70 (p=0.03), number of BMs <3 (p=0.016), and BM among the first metastatic sites (p=0.04) were associated with longer OS. On multivariate analysis, KPS ≤70 was associated with higher risk of death (HR 3.0, p=0.03). Of 46 pts with adequate imaging follow-up, 29 (63%) had intracranial progression with a median FFBMP of 7.4 mo (95% CI 5.7–12.7). At 12 mo the estimated cumulative DBF rate was 61.1% (95%CI 40.8%–74.4%) and LBF rate was 17.8% (95%CI 2%–31.1%). Number of BMs (≥3 vs <3) was not associated with FFBMP (p=0.7). Of the 29 pts with BM progression, additional radiation therapy (RT) (vs. no RT) was associated with improved survival (21.7 vs. 7.0 mo, p<0.0001). CONCLUSIONS: TNBC pts with BM treated with SRS had an OS of 13.1 mo and FFBMP of 7.4 mo. Good KPS was an independent prognostic factor for OS. Further studies with more pts or conducted prospectively are needed to better understand and to improve treatment outcomes in this pt population.

RADI-18. SURVIVAL AND DISEASE CONTROL AFTER UPFRONT STEREOTACTIC RADIOSURGERY FOR BRAIN METASTASES FROM BREAST CANCER

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BACKGROUND: As systemic therapy for metastatic breast cancer (BC) improves, the survival benefit from hormonal and targeted therapy urges