

To Study the Quality of Life and Survival Outcomes of Patients with Brain Metastasis Treated with Stereotactic Radiation Therapy of Various Primary Tumors - A Single Center Experience

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Abstract

Introduction: Incidence of brain metastasis is increasing due to improvement of both diagnostic tools and oncological treatment for primary tumor. Approximately 10–30% of patients develop brain metastasis during course of their disease in solid tumors. Stereotactic radiation Therapy plays a major role in multidisciplinary management of brain metastasis.

Objectives: To evaluate the efficiency and toxicity profile of SRT with or without other treatment for brain metastasis from various primary tumors.

Materials and Methods: Between November 2023 to April 2025, 50 consecutive patients of single or upto 5 brain mets (Oligometastasis) were treated with ablative Stereotactic Radiation Therapy at Himalayan Hospital, Dehradun, India. Follow up data was analysed until July 2025. Kaplein Meyer and Cox Proportional Hazards Regression Analysis were used for survival analysis. Quality of life questionnaire were used to evaluate QOL.

Results: Among 50 patients, median Overall Survival (OS) was 14.8 months. Statistically significant factors of better OS were oligometastasis with KPS > 80% and no extracranial metastasis. Quality of life significantly improved by SRT.

Conclusions: Patients receiving SRT achieved good local control and benefit in Overall Survival. For patients with Brain metastasis, limited extracranial disease, higher BED10 SRT> 50 Gy and targeted therapy may predict a favorable prognosis. SRT also improved Quality of life in these patients.