



Aim

The aim of the Cognitive Decline after Brain Radiosurgery (CoDe-B-Rad) study was to assess cognitive and Health Related Quality-of-Life (HRQoL) changes in participants that have undergone Stereotactic Radiosurgery (SRS) treatment. We present the 6-month results from the prospective cohort of the Study.

Methods

Participants with brain metastases and meningiomas treated at Nottingham University Hospitals NHS Trust, UK, were recruited in the study. The Montreal cognitive assessment (MoCA) was used along with HRQoL questionnaires QLQ-C30 and BN20 to assess cognition and QoL at baseline and at 6 months post treatment. The minimal clinically important difference for the MoCA was 3 points, and 10 points in the pre- and post-treatment QLQ scores was considered clinically significant.

References

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 Taphoorn MJB, Claassens L, Aaronson NK, Coens C, Mauer M, Osoba D, et al. An international validation study of the EORTC brain cancer module (EORTC QLQ-BN20) for assessing health-related quality of life and symptoms in brain cancer patients. *Eur J Cancer* [Internet]. 2010 Apr 1 [cited 2024 Apr 24];46(6):1033–40. Available from: <http://www.ejancer.com/article/S0959804910000316/fulltext>

Results

Sixty-one participants with brain metastases (n=51) and meningiomas (n=10) were recruited. Participants' mean age at consent was 65.7 yrs (range: 30-85).

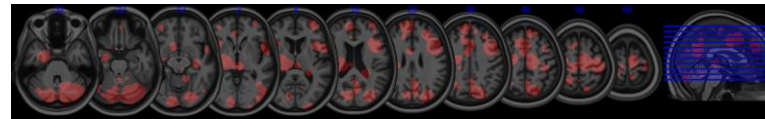


Figure 1: (top) Overlay of the lesions from all patients on the T1w template image.

At baseline 52% of participants presenting with mild cognitive impairment (MCI). At 6 months, eleven participants (30%) showed a decline on MoCA, for four (10%) being significant. For 17 (46%) participants there was an improvement on MoCA with eight (22%) being clinically significant.

	No pts	MoCA	MoCA SD	HRQoL	HRQoL SD
Baseline	61	23.9	3.95	57.43	28.26
6 months	37	25.5	2.91	62.31	22.68

Table 1: The mean (\pm SD) MoCA and HRQoL scores at baseline and 6 months.

Sixteen (43%) and nine (24%) participants saw a significant deterioration and improvement respectively in their HRQoL at 6 months post-treatment. Mean insomnia, future uncertainty, and median social functioning showed a clinically significant deterioration for the cohort.

MoCA at 6 months

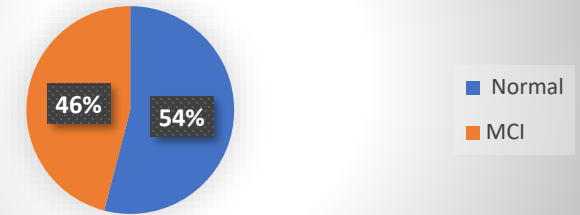


Figure 2: The mean MoCA for the cohort at 6 months. The majority of the cohort saw an improvement in their cognition at 6 months post treatment.

HRQoL change at 6 months



Figure 3: The change in HRQoL for the cohort at 6 months. The majority of the cohort saw a deterioration in their HRQoL post treatment.

Conclusion

Results from the prospective cohort of the CoDe-B-Rad study suggest that for nearly 50% of patients that receive SRS their cognition improves at 6 months post SRS. HRQoL remains unchanged with insomnia, future uncertainty and social functioning showing a clinically significant deterioration post-treatment.