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BIOM-03. LACK OF CORRELATION OF MR-DETERMINED WHITE MATTER INJURY/WMI WITH NEUROCOGNITVE FUNCTION (NCF/6 MONTHS FOLLOWING WBRT+/−HIPPOCAMPAL AVOIDANCE/HA)+MEMANTINE:SECONDARY ANALYSIS OF NRG ONCOLOGY NRGCC0014

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PURPOSE: Previous analysis of NRG-CC001 suggested pre-treatment WMI volume was a significant imaging-biomarker predictor of post-treatment neurocognitive decline at 4 and 12 months following HA-WBRT+Memantine. This suggested patients with greater pre-treatment WMI were more susceptible to neurocognitive decline, specifically when undergoing HA-WBRT, but not standard-WBRT. The current analysis examined the relationship between changes in MR-determined WMI and NCF at 6 months following WBRT+memantine+HA. METHODS: NCF-testing was performed at baseline, 2, 4, 6, and 12 months post-WBRT, and included Hopkins Verbal Learning Test-Revised (HVLT-R), Trail Making Test (TMT) Parts A and B, and Controlled Oral Word Association (COWA). Pre-treatment WMI was measured by FLAIR-volume corrected for whole brain volume and corrected for the FLAIR volume associated with met-tumors (FLAIR-volume/whole brain volume-met-tumors). Pearson correlation coefficients were used to assess the correlation between pre-treatment WMI and change from baseline to 6-months for each standardized NCF score. RESULTS: Of the 518 randomized patients, 443 (217 patients WBRT+Memantine and 226 HA-WBRT+Memantine) had WMI data available at baseline, and of those, 162 patients (89 patients WBRT+Memantine and 73 HA-WBRT+Memantine) had both baseline and 6-month imaging available. For these patients, there was only a trend toward significance for change in corrected FLAIR-volume from baseline to 6-months (p = 0.174) but no significant change in met-tumors (p = 0.438) or whole brain volume (p = 0.977). The change in standardized TMT Part A and B and the change in composite 6-month change scores were moderately correlated with change in corrected FLAIR volume adjusted for met-tumors but only in the WBRT+Memantine arm (rho=-0.33, -0.34, and p-value < 0.003, 0.006, 0.001). CONCLUSIONS: Despite an increase in post-WBRT MR-WMI at 6-months, analysis did not show strong correlation between NCF and MR-WMI as determined by FLAIR-volume change between baseline and 6-months. Similar analyses are underway for the NRG-CC003 imaging study.