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Utility of magnetic resonance spectroscopy and perfusion studies in characterization of intracranial space occupying lesions**Niharika Prasad**

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Introduction & Aim: The advancement in surgical treatment and chemotherapy options imaging modalities also need to incorporate advanced neuroimaging modalities for more accurate diagnosis and grading of intracranial masses. This prospective study aims to characterize intracranial space occupying lesions using dynamic susceptibility Magnetic Resonance (MR) perfusion and multi voxel spectroscopy techniques. It attempts to distinguish between high and low grade lesions and gliomas from metastasis and other infective morphologically similar pathologies.

Methodology: Subjects of all age groups with intra and extra axial lesions diagnosed on conventional magnetic resonance imaging were subjected to perfusion and/or multi voxel spectroscopy on 1.5 T Magnetom Siemens Avanto System. Histopathology was gold standard. Data was analyzed using statistical package SPSS version 17 and cut off values for rCBV, Cho/NAA and Cho/Cr were obtained. Data analysis was done by using correlation coefficient and diagnostic tests (sensitivity, specificity, positive predictive value and negative predictive value).

Findings: By means of this study it was concluded that an intracranial lesion could be said to be high grade if rCBV value was greater than or equal to 2.5 (sensitivity 85%, specificity 88%) while cut off value for Cho/NAA was 2.5 for high grade gliomas (sensitivity 91%, specificity 87%) and similarly cut off value using Cho/Cr was obtained as 1.7 for high grade gliomas (sensitivity 75%, specificity 62%). These also aided in solving dilemma faced in distinguishing post treatment changes from residual/recurrence.

Conclusion & Significance: MR perfusion and spectroscopy if used wisely can improve diagnostic performance especially where conventional MRI is doubtful. Further studies may be required for better standardization of these methods so they can be incorporated in imaging protocol on a larger scale.

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