

Lipid Quantification In Predicting Survival Outcome Of Gliomas

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Purpose

Evaluating the predictive values of lipids as prognostic marker for gliomas using MRI chemical shift gradient echo in-and opposed-phase (IOP) sequence.

Materials and Methods

The analysis of the clinical and imaging data particularly IOP of thirty-three histologically proven glioma patients was performed. Lipid quantification indicated by signal loss ratio (SLR) was obtained from lipid map constructed from IOP imaging. The SLR of the tumour regions were analysed using a three-group analysis approach based on volume under surface (VUS) of receiver operating characteristics. The prognostic factors were then stratified into three groups based on the optimal cut-points to evaluate the survival outcomes using Kaplan-Meier survival method and Cox regression model.

Results

The SLR values of solid non-enhancing region demonstrated significant differences between the three groups (low, medium, and high lipid groups) stratified by the OCP for overall survival (OS) ($p=0.01$) and time to progression ($p=0.048$). The medium and the high lipid groups had five and seven times higher risk of worst survival compared to the low lipid group respectively.

Conclusion

SLR of solid non-enhancing region showed potential as feasible prognostic tool for gliomas. SLR values have implications on survival outcomes and prognostification of gliomas patients.