

Abstract

Purpose of the present study was to evaluate the role of (18)F-FDOPA PET/CT for predicting survival in patients with suspected recurrent glioma.

METHODS: A total of 33 previously treated, histopathologically proven glioma patients with clinical and contrast enhanced MRI findings suspicious for recurrence were enrolled in this prospective study. All patients underwent (18)F-FDOPA PET/CT. Ratios of tumor uptake to normal tissue uptake were generated by dividing the tumor SUVmax with SUVmax of the contralateral normal brain tissue (T/N), normal striatum (T/S), normal white matter (T/W) and normal cerebellum (T/C). Patients were followed up clinically and by repeated imaging. Data was censored, if the patient died of disease or at the end of the study. Survival analysis was performed for the distributions of each variable and by multivariate analysis.

RESULTS: (18)F-FDOPA PET/CT was positive for recurrence in 25 patients and negative in 8. Death occurred in nineteen patients. Median follow up period was 20.2 months. Median survival in this study was 39.2 months. In univariate analysis significant association of survival was noted with results of (18)F-FDOPA PET/CT (P=0.007) and (18)F-FDOPA PET/CT quantitative parameters namely SUVmax (P=0.001), T/S (P=0.005), T/W (P=0.0004), T/N (P=0.001) and T/C (P=0.003) were found to be significant. On multivariate analysis, only MRI size of the recurrent tumor (P=0.002) and T/N ratio of (18)F-FDOPA PET/CT (P=0.005) were found to be independent predictors of survival.

CONCLUSION: T/N ratio on (18)F-FDOPA PET/CT is an independent predictor of survival in patients with suspected recurrent glioma, along with size of recurrent tumor on MRI.

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