

Correlation between quantitative values of blood flow from arterial spin labelling perfusion imaging and of metabolism from ¹¹C-methyl-L-methionine PET in recurrent glioblastomas

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Abstract

Objective: The present study aimed to clarify whether quantitative values from arterial spin labelling (ASL) perfusion imaging correlate with those from ¹¹C-methyl-L-methionine (¹¹C-met-PET) in recurrent glioblastomas.

Methods: We scanned ASL and ¹¹C-met-PET for ten patients with recurrent glioblastoma within one week. For each patient, the ratio of the highest relative cerebral blood flow (rCBF) in tumor divided by rCBF in apparent normal brain in the contralateral side (rCBF_{T/N}) was calculated. Also on ¹¹C-met-PET, ratio of standardized uptake value in tumor to normal brain (SUV_{T/N}) was calculated with dividing SUV at the highest accumulation in tumor by SUV in normal brain for each patient. Finally, correlation was analyzed between values of rCBF_{T/N} and SUV_{T/N} in all patients.

Results: In all patients, the regions showing the highest blood flow on ASL image was depicted at nearly same regions showing the highest accumulation of ¹¹C-met on PET image. A significant correlation was found between values of rCBF_{T/N} and SUV_{T/N} (rs = 0.785, p < 0.01).

Conclusion: The present study suggested that ASL become a reliable examination for assessment of biological characteristics in recurrent glioblastoma, equivalent to ¹¹C-met-PET.