



## Presentation Abstract

Title: 074 - Perfusion MR Imaging in Differentiating High-Grade from Low-Grade Gliomas

Keywords: Glioma; perfusion; low -grade/high-grade

Authors: Sparacia, G. ·Purpura, P. ·Di Giovanna, E. ·Lagalla, R.  
Policlinico Universitario Paolo Giaccone Palermo  
Palermo, ITALY.

Abstract Purpose

Body: To correlate perfusion MR imaging with histologic grade of cerebral gliomas.

### Materials & Methods

Relative cerebral blood volume (rCBV) maps were determined in 22 patients with pathologically proved gliomas (11 glioblastomas, 8 anaplastic gliomas and 2 low-grade gliomas) by dynamic contrast-enhanced T2\*-weighted MR imaging. MR examination was completed with conventional T1- and T2-weighted imaging. The rCBV maps were calculated with an independent workstation by fitting a gamma-variate function to the contrast material concentration versus time curve. Relative CBV ratios obtained between tumor and normal white matter were compared between glioblastomas, anaplastic gliomas and low-grade gliomas by means of receiver operating characteristic (ROC) analysis.

### Results

Mean rCBV ratios were 4.85 ( $\pm$  1) for glioblastomas, 3.87 ( $\pm$  0.7) for anaplastic gliomas and 1.65 ( $\pm$  1.6) for low-grade gliomas. Receiver operating characteristic analysis demonstrates significant differences between glioblastomas and anaplastic gliomas ( $p < .05$ ), between anaplastic gliomas and low-grade gliomas ( $p < .05$ ) and between glioblastomas and low-grade gliomas ( $p < .01$ ). The rCBV ratio cutoff value between high-grade gliomas and low-grade gliomas was 2.52 with a sensitivity and specificity of 100% and 75% respectively.

## Conclusion

Perfusion MR imaging is a reliable technique for differentiating high-grade from low-grade gliomas.

### [American Society of Neuroradiology](#)

2210 Midwest Road, Suite 207

Oak Brook, IL 60523-8205

Phone: (630) 574-0220

Fax: (630) 574-1740

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