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Presentation Details

Presentation Title: Peritumoral perfusion and proton spectroscopic MR imaging in the differentiation of gliomas and solitary metastases

Presentation Number: B-0507

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(The presenting author is underlined.)

Disclosure Block: **G. Sparacia:** None. **A. Iaia:** None. **J. Gadde:** None. **M. Midiri:** None.

Session Number: SS 611

Topic: Neuro

Session Title: Brain tumour (1)

Session Date/Time: Thursday Mar 5 2015, 10:30 - 12:00

Room: E2

Below is a view of your accepted abstract:

Purpose: To assess the value of peritumoural perfusion-weighted and proton spectroscopic MR imaging in preoperative grading of gliomas and in differentiating between primary gliomas and solitary metastases.

Methods and Materials: Ten low-grade gliomas, eight high-grade gliomas, and ten metastases were prospectively evaluated with MR imaging, dynamic susceptibility contrast-enhanced perfusion imaging, and single-voxel proton MR spectroscopy before surgical resection or stereotactic biopsy. Maximal rCBV values and maximal Cho/Cr ratios were calculated from peritumoural region surrounding the tumour. Tumour grade presumed with these values was compared to histopathologic grading. Differences in the study parameters between groups were assessed using the Mann-Whitney test. A Receiver Operating Characteristic analysis was performed to determine cutoff values.

Results: A clear rCBV cutoff value of 1.88 was detected for differentiating low-grade gliomas from high-grade gliomas (sensitivity 100%, specificity 90%, area under the ROC curve .994, $p < 0.0001$). A clear rCBV cutoff value of 1.20 was detected for differentiation of metastases from gliomas (sensitivity 100%, specificity 90%, area under the ROC curve .972, $p < 0.0001$). The differences in the Cho/Cr ratios in the peritumoural regions of high-grade gliomas and of solitary metastasis were statistically significant ($p < .001$) but a clear cutoff value was not found.

Conclusion: Our preliminary data support that peritumoural perfusion-weighted imaging can assist in preoperative differentiation between a glioma and a solitary metastasis, along with separating high-grade gliomas from low-grade gliomas.

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