

PROVA ORALE N. 1

Descrivi come affrontare l'esecuzione di un esame RM di un paziente portatore di un impianto cocleare interno. Procedura e accortezze tecniche per il miglioramento della qualità delle immagini.

Esti *Hy* *Re*

PROVA ORALE N. 2

Il ruolo del TSRM nell'esecuzione degli esami Angio TC e TC perfusione, dall'accettazione del paziente all'esecuzione dell'esame. Descrivi le tecniche di acquisizione e post-processing.

ESU My 200

PROVA ORALE N. 3

Descrizione di un esame RM studio della dinamica liquorale. Tipologia di studio, tecnica utilizzata e accortezze per ottenere il miglior risultato diagnostico possibile.

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QUESITO DI INFORMATICA

Che cos'è Excel?

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Excel

Article

The Role of Amide Proton Transfer (APT)-Weighted Imaging in Glioma: Assessment of Tumor Grading, Molecular Profile and Survival in Different Tumor Components

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Simple Summary: In this retrospective study of 61 patients with diffuse gliomas, APT-weighted imaging in the solid tumor component provided quantitative metrics associated with WHO grade and survival. Mean APT values of the necrotic component showed high variability between subjects, warranting further investigation. These results highlight the importance of assessing the different tumor components with APT-weighted imaging, to provide useful diagnostic and prognostic information for the management of patients with gliomas.



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Abstract: Amide Proton Transfer-weighted (APTw) imaging is a molecular MRI technique used to quantify protein concentrations in gliomas, which have heterogeneous components with varying cellularity and metabolic activity. This study aimed to assess the correlation between the component-specific APT signal of the neoplasm and WHO grade, molecular profile and survival status. Sixty-one patients with adult-type diffuse gliomas were retrospectively analyzed. APT values were semi-automatically extracted from tumor solid and, whenever present, necrotic components. APT values were compared between groups stratified by WHO grade, IDH-mutation, MGMT promoter methylation and 1- and 2-year survival status using Wilcoxon rank-sum test, adjusting for multiple comparisons. Overall survival (OS) was analyzed in the subgroup of 48 patients with grade 4 tumors using Cox proportional-hazards models. Random-effects models were used to assess inter-subject heterogeneity of the mean APT values in each tumor component. APT values of the solid component significantly differed between patients with grades 2–3 and 4 tumors (mean 1.58 ± 0.50 vs. 2.04 ± 0.56 , $p = 0.028$) and correlated with OS after 1 year (1.81 ± 0.58 in survivors vs. 2.17 ± 0.51 in deceased patients, $p = 0.030$). APT values did not differ by IDH-mutation, MGMT methylation, and 2-year survival status. Within grade 4 glioma patients, higher APT kurtosis of the solid component was a negative prognostic factor (hazard ratio = 1.60, $p = 0.040$). Mean APT values of the necrosis showed high inter-subject variability, although most necrotic tumors were grade 4 and IDH wildtype. In conclusion, APTw imaging in the solid component provided metrics associated with glioma grade and survival status but showed weak correlation with IDH-mutation and MGMT promoter methylation status, in contrast to previous works. Further research is needed to understand APT signal variability within the necrotic component of high-grade gliomas.

Keywords: glioma; glioblastoma; IDH; MGMT; survival; MRI; chemical exchange saturation transfer

