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P0318 - MR IMAGE PATTERNS OF GRADE II/III DIFFUSE GLIOMAS RECLASSIFIED AFTER 2016 WHO CLASSIFICATION: CORRELATION OF RADIOLOGY, PATHOLOGY AND MOLECULAR DATA ON A SERIES OF 42 CASES

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Resumen

Objectives: Comparison of MRI data of grade II/III reclassified gliomas (histological and molecular discordant data from previous diagnoses and recent 2016 WHO classification) with same grade gliomas with non-diagnostic-change at the same period in our institution.

Methods: Retrospective review of adult patients with II/III gliomas focused on initial MRI findings (tumor location, growth and borders, edema, necrosis, contrast-enhancement, perfusion/diffusion features). Analysis of radiologic patterns of gliomas with reclassified diagnosis after molecular study (IDH1, CODEL1p19q, ATRX) compared to same grade gliomas with non-diagnostic-change (concordant previous histology and complementar molecular data).

Results: A total of 42 patiens with grade II/III gliomas were found in a 3-year period. 24 cases (3 IDH1+/CODEL+, 14 DIH1+/CODEL-, 7 IDH1-) needed reclassification mostly from oligodendroglioma to astrocytoma.18 cases (9IDH1/CODEL+, 5 IDH1+/CODEL-, 4 IDH1-) remained without change. MRI patterns on reclassified tumors compared to non-diagnostic-changed showed a preference for frontal location ($p = 0.01$), minimal edema ($p = 0.005$), minor contrast enhancement ($p = 0.02$), increased diffusion ($p = 0.05$), isolated lesions (p 0.001), no necrosis ($p = 0.02$). In a further analysis among reclassified tumors only, those with IDH1+/CODEL + showed again a major trend towards frontal location and minor edema, compared to those with IDH1+/CODEL-. Finally, comparing only oligodendrogliomas in this series, reclassified and non-diagnostic-change, a preference was found towards a frontal location and minimal edema ($p = 0.01$) for the former, and no necrosis and normal perfusion data for the latter. Main limitation of this study is the small sample volume.

Conclusions: Diffuse grade II/III gliomas pose significant problems at diagnoses as reclassifications may be needed after the inclusion of molecular data. MRI findings of the reclassified gliomas showed a major preference for specific radiologic patterns which may reinforce the discrepancy between histology and molecular findings. Most diagnostic reclassification appeared in tumors of frontal location, with minimal edema or contrast enhancement, with increased diffusion and no necrosis. Further studies on radiological and molecular correlation are needed to correctly assess this issue.