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C-0219 - IS THE CONTRAST-ENHANCING RIM WIDTH ASSOCIATED WITH ODZ1-DEPENDENT TUMOR INVASION? ODZ1-ASSOCIATED RADIOMICS FEATURES AND HYPOXIA-DEPENDENT EPIGENETIC REGULATION

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Resumen

Objectives: ODZ1 has been associated with cell invasion in glioblastoma cells through activation of the RhoA/ROCK pathway. Here, we aim to describe the association of ODZ1 and putative tumor invasion radiomics markers. Furthermore, we describe the current knowledge of ODZ1 regulation and signaling in glioblastoma.

Methods: The tumor geometrical features were determined in the preoperative gadolinium-enhanced T1-weighted and FLAIR MRI sequences. High spatial resolution MRIs were obtained in 1.5 or 3 Tesla strength fields. The MRI Digital Imaging and Communication in Medicine (DICOM) files were imported into the scientific software package Matlab (R2015b, The MathWorks, Inc., Natick, MA, USA). Then, the images were semi-automatically segmented and manually corrected. Several radiomics features were analyzed in 38 patients with glioblastoma. In addition, immunohistochemical staining was performed in all cases by using an in-house immunoabsorbed anti-icODZ1 antibody against the N-terminal region of ODZ1.

Results: The Contrast-enhancing (CE) rim width significantly associated with the intensity of nuclear and cytoplasmic ODZ1 expression ($p = 0.033$ and $p = 0.040$, respectively). Furthermore, when we considered the ODZ1 nuclear expression as a dichotomous variable, by grouping on one side the patients without any ODZ1 expression (9 patients) and on the other the patients with poor, intermediate, and positive expression (29 patients), the CE rim was the only geometrical tumor feature that significantly associated with ODZ1 expression. In the group with no ODZ1 expression, the contrast-enhancing rim width was smaller than in the tumors expressing ODZ1.

Conclusions: ODZ1 expression is positively associated with the tumor CE rim width in the pretreatment MRI, but no correlation was found with other imaging markers of invasion. Although the CE rim width biological interpretation remains unclear, its association with ODZ1-an invasion molecular marker epigenetically upregulated by the tumor hypoxic microenvironment-might suggest a potential role in hypoxia-dependent invasion, a hypothesis that requires further research.