

# Immunodeficiency-associated CNS lymphoma

Immunodeficiency-associated CNS lymphomas are recognized in the (World Health Organization Classification of Tumors of the Central Nervous System 2016) as a specific subtype of Primary central nervous system lymphoma.

This subtype of CNS lymphoma is Diffuse large B-cell lymphoma and Epstein-Barr virus-positive. Its accurate presurgical diagnosis is often unfeasible because it appears as ring-enhancing lesions mimicking glioblastoma or metastases.

Patients without AIDS with histologically confirmed diffuse large B-cell Epstein-Barr virus-positive primary CNS lymphoma (December 2010 to January 2022) and diagnostic MR imaging without onco-specific treatment were retrospectively studied. Clinical, demographic, and conventional imaging data were reviewed. Previously published DSC-PWI time-intensity curve analysis methodology, to presurgically identify primary CNS lymphoma, was used in this particular lymphoma subtype and compared with a prior cohort of 33 patients with Epstein-Barr virus-negative CNS lymphoma, 35 with glioblastoma, and 36 with metastasis data. Normalized curves were analyzed and compared on a point-by-point basis, and previously published classifiers were tested. The standard percentage of signal recovery and CBV values were also evaluated.

Results: Seven patients with Epstein-Barr virus-positive primary CNS lymphoma were included in the study. DSC-PWI normalized time-intensity curve analysis performed the best for presurgical identification of Epstein-Barr virus-positive CNS lymphoma (area under the receiver operating characteristic curve of 0.984 for glioblastoma and 0.898 for metastasis), followed by the percentage of signal recovery (0.833 and 0.873) and CBV (0.855 and 0.687).

When a necrotic tumor is found in a potentially immunocompromised host, neuroradiologists should consider Epstein-Barr virus-associated primary central nervous system lymphoma. DSC-PWI could be very useful for presurgical characterization, with especially strong performance of normalized time-intensity curves <sup>1)</sup>.

<sup>1)</sup>

Pons-Escoda A, García-Ruiz A, Naval-Baudin P, Grussu F, Viveros M, Vidal N, Bruna J, Plans G, Cos M, Perez-Lopez R, Majós C. Diffuse Large B-Cell Epstein-Barr Virus-Positive Primary CNS Lymphoma in Non-AIDS Patients: High Diagnostic Accuracy of DSC Perfusion Metrics. AJNR Am J Neuroradiol. 2022 Oct 6. doi: 10.3174/ajnr.A7668. Epub ahead of print. PMID: 36202547.

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