Leptomeningeal enhancement on mri is a promising biomarker to monitor disease worsening, especially in progressive ms - yes

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Gray matter (GM) pathology in multiple sclerosis (MS) is characterized by presence of cortical subpial lesions and leptomeningeal (LM) inflammation in the form of ectopic lymphoid follicle-like structures. It has been proposed that inflammatory cells in the leptomeninges may act to sustain the immune response contributing to development of subpial cortical lesions. Gadolinium (Gd)-based three-dimensional fluid-attenuated-inversion recovery (3D-FLAIR) MRI, shows that leptomeningeal (LM) contrast enhancement (CE) occurs frequently in secondary-progressive (SP) and relapsing-remitting (RR) MS patients, and is associated with subpial cortical demyelination on post-mortem examination. Because cortical subpial lesion pathology is challenging to visualize in-vivo using 3T MRI, LM CE has the potential to become an indirect in-vivo marker of cortical pathology. Therefore, there is an increasing interest for the application of this imaging modality in patients with MS. Given the uncertainty in the literature as to how common LM CE is in MS, with frequency estimates ranging from 1% to 61%, there is an urgent need to determine LM CE prevalence using state of the art MRI methods and a longitudinal prospective, serial study design. MS patients with LM CE showed significantly greater percentage decreases in cortical volume, compared to those without. In a recent retrospective study, while MS patients with presence of LM CE developed more cortical atrophy over 5 years compared to those without, no differences in deep GM volume changes were found between MS patients with and without LM CE, suggesting compartmentalization of inflammatory processes in the cortex.