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The role of advanced MRI techniques in the diagnosis of brain infections

In addition to conventional MR imaging techniques, a variety of advanced techniques have found their place in clinical practice or are the subject of intense research. These advanced techniques offer more than the anatomic information provided by the conventional MR imaging sequences. They generate physiologic data and information on chemical composition. This talking provides an overview of the current state of neuroimaging in infectious brain diseases and discusses 4 types of physiology-based MR imaging methods, namely, diffusion-weighted imaging (DWI), proton MR spectroscopy, 3D-CISS and perfusion-weighted imaging in the setting of infections disorders. In summary, neurotuberculosis, neurocysticercosis, Chagas disease, Toxoplasmosis, atypical pyogenic infection, viral infections, fungal abscess and inflammatory conditions in the setting of HIV infection are discussed. The role of functional imaging in inflammatory lesions mimicking neoplastic lesions is also demonstrated. Nonconventional Magnetic resonance techniques may provide useful data in challenging cases of infectious disease. However, there may be MRI overlapping findings in some infectious disorders on DWI.

Biography

Rafael Martins Ferreira is currently a Professor at Universidade Federal de Santa Catarina in Florianopolis, Brazil. His neuroradiology training was done at Hospital Beneficencia Portuguesa (Sao Paulo, Brazil) and Massachusetts General Hospital (Boston, USA). He works at Diagnostico das Americas (DASA-Florianopolis unit) and is the Director of MF imagens in Biguacu, Brazil. He has 10 years of experience doing functional MRI in neuroradiology, publishing papers in reputed journals and serving as Editorial Board Member of repute.

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