

**Natureza do trabalho:** Resumo

TÍTULO

*NEUROIMAGING IN THE BRAIN IN HIV-INFECTED PATIENTS*

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RESUMO

**Introduction:** The use of neuroimaging in patients with Human immunodeficiency virus (HIV) is recent; it allows the detection of the affected areas, either structurally and functionally. In addition, it is a noninvasive technique that is used to examine the impact of pathogenesis of HIV on the Central Nervous System (CNS), diagnosis, and efficacy treatment. **Literature Review:** HIV neuroinvasion occurs in about 80 % of infected individuals. In the early stage of infection, HIV enters in the CNS via infected monocytes, macrophages and T cells, crosses the blood-brain barrier and causes neurocognitive impairment. Knowledge of complications such as HIV-associated lesions, opportunistic infections, and neoplasms, and their characteristic imaging features, such as cerebral atrophy, white matter lesions, tissue volume reduction in the caudate nucleus, have enabled the detection, diagnosis, and initiation of appropriate treatment. A lot of imaging modalities is used in patients who have HIV or AIDS. Magnetic resonance imaging, computed tomography (both commonly used) are more sensitive at later stages of HIV infection and enable structural imaging findings, while single-photon emission computed tomography, proton magnetic resonance spectroscopy, and positron emission tomography are more sensitive to changes in the brain at the earlier stages and enable studies of brain's physiology and biochemistry. **Conclusion:** Although the clinical assessment remains the gold standard, the imaging methods are so helpful to complement the diagnosis of neurological complications associated with HIV infection. Therefore, the advantages and disadvantages of implementing each method should be evaluated to propose future directions for the efficacy treatment.