HIV-Associated Dementia and Caudate Atrophy

A 36 year old male presented with progressive dementia of two months duration and was found to have predominant extrapyramidal features in the form of rigidity and bradykinesia. There were no tremors or choreoathetotic movements. MRI of the brain (Fig. 1) revealed diffuse cortical atrophy with bilateral caudate atrophy. CSF studies were normal and serology for Toxoplasma and Cytomegalovirus were negative. ELISA for HIV was positive by two different kits. Infection of the central nervous system with human immunodeficiency virus (HIV) is associated with cognitive impairment that ranges from mild cognitive and motor difficulties to dementia. The most common abnormalities on MRI of brain include white matter signal hyperintensities and atrophy. HIV infection causes progressive atrophy within the gray and white matter in the brain. These changes are most severe in advanced stages of disease but are evident even in medically asymptomatic HIV-positive persons. Within the gray matter, the caudate nucleus exhibited progressive volume loss linked to disease stage and the rate of decline of the CD4+ cell count. The MRI images are evaluated using three planimetric measures of brain structure: the bicaudate ratio (BCR), a measure of caudate region atrophy, the bifrontal ratio (BFR), a measure of frontal region atrophy, and the ventricle to brain ratio (VBR), a measure of overall cerebral atrophy. Selective caudate region atrophy is associated with HIV dementia as demonstrated by higher BCR than VBR in these patients. Decrease in caudate volume in patients with advanced HIV disease is associated with poor performance on neuropsychologic tests of complex motor and sequencing skills.

REFERENCES


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