Guest editorial

Quinolinic acid and neurodegeneration in AIDS

AIDS is associated with a variety of focal neurologic diseases caused by opportunistic infections in addition to a global dementing disease termed HIV associated dementia complex (ADC) (Anonymous, 1991). How HIV infection leads to ADC remains a hotly debated issue. HIV can be recovered from the cerebrospinal fluid soon after infection (Carne et al., 1985; Ho et al., 1985), however, HIV infection of the central nervous system (CNS) parenchyma appears to be a late manifestation, seen only after significant immune compromise. Some investigators have concluded that ADC can appear in the absence of HIV encephalitis (Glass et al., 1993), while others found a tighter association between the clinical and pathologic entities (Wiley et al., 1994). Even if one accepts a close link between HIV encephalitis and CNS damage (and thus the clinical syndrome ADC), the pathogenesis remains an enigma. In classical viral encephalitides (e.g. herpes simplex encephalitis) clinical symptomatology and CNS damage are readily explained by abundant neural viral infection and lysis. While some have claimed significant HIV infection of neuronal elements (Nuovo et al., 1994; Saito et al., 1994), the majority of evidence would suggest that CNS damage in HIV encephalitis somehow results from macrophage/microglia infection (Budka et al., 1991). Theories abound regarding how CNS damage results from this macrophage infection.

In this issue of the Journal of NeuroVirology, two articles address the potential role of quinolinic acid in mediating CNS damage associated with HIV encephalitis. Past work has clearly shown a strong association between inflammatory CNS disease and neurotoxic concentrations of quinolinic acid (Heyes et al., 1992). While quinolinic acid can be produced by a variety of cell types, its tight association with inflammatory diseases rather than non-inflammatory neurodegenerative disease, suggests that something associated with the inflammatory response triggers quinolinic acid production. This is well documented in poliomyelitis where there are markedly elevated levels in CNS tissue (Heyes et al., 1992). Whether quinolinic acid augments neuronal damage above that mediated by lytic polio infection is unknown.

The two current papers take different tacks to examine the association of HIV and quinolinic acid related to neuronal damage. In the first paper (Brew et al., 1995), Brew et al. show that macrophage produc-
References


