

Brainstem perfusion is impaired in chronic fatigue syndrome.

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We looked for brain perfusion abnormalities in patients with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). An initial pilot study revealed widespread reduction of regional brain perfusion in 24 ME/CFS patients, compared with 24 normal volunteers. Hypoperfusion of the brainstem (0.72 ± 0.05 vs. 0.80 ± 0.04 , $p < 0.0001$) was marked and constant. We then tested whether perfusion to the brainstem in ME/CFS patients differs from that in normals, patients with major depression, and others with epilepsy. Data from a total of 146 subjects were included in the present study: 40 normal volunteers, 67 patients with ME/CFS (24 in the pilot study, 16 with no psychiatric disorders, 13 with ME/CFS and depression, 14 with ME/CFS and other psychiatric disorders), 10 epileptics, 20 young depressed patients and 9 elderly depressed individuals. Brain perfusion ratios were calculated using ^{99}Tcm -hexamethylpropylene amine oxime (^{99}Tcm -HMPAO) and single-photon emission tomography (SPET) with a dedicated three-detector gamma camera computer/system (GE Neurocam). Brain-stem hypoperfusion was confirmed in all ME/CFS patients. Furthermore, the 16 ME/CFS patients with no psychiatric disorders and the initial 24 patients in the pilot study showed significantly lower brainstem perfusion (0.71 ± 0.03) than did depressed patients (0.77 ± 0.03 ; ANOVA, $p < 0.0001$). Patients with ME/CFS have a generalized reduction of brain perfusion, with a particular pattern of hypoperfusion of the brainstem.

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