

A case of arterial bypass surgery for misery perfusion in the posterior fossa
due to the bilateral vertebral artery occlusion: Changes in hypoxic tissue on
¹⁸F-FRP-170 PET

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Abstract

Positron emission tomography (PET) with radiolabeled 2-nitroimidazoles detects hypoxic but viable tissue that exists in acute and chronic ischemic stroke. A 46-year-old man present with recurrent dizziness. Angiography showed an occlusion in the bilateral vertebral arteries. The patient underwent a right superficial temporal artery - posterior cerebral artery anastomosis. ¹⁵O-gas PET revealed elevated oxygen extraction fraction (OEF) in the bilateral occipital lobes and cerebellar hemispheres where uptake of 1-(2-¹⁸F-fluoro-1-[hydroxymethyl]ethoxy) methyl-2-nitroimidazole (¹⁸F-FRP-170) was observed. Postoperatively, OEF returned to normal level and the uptake of ¹⁸F-FRP-170 resolved.