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FRONTOTEMPORAL RESTING STATE HYPOPERFUSION IN PATIENTS WITH MAJOR DEPRESSION - A STUDY USING ARTERIAL SPIN LABELING

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Introduction: Major depression is associated with altered neural function in frontal and limbic areas.

Objectives: The findings have been inconsistent, especially those derived from cerebral blood flow (CBF) measures.

Aims: To identify differences in regional CBF between patients and controls using arterial spin labeling (ASL) at rest.

Methods: 20 patients with major depression and 20 matched healthy controls were scanned in the morning with a pCASL-sequence at a 3 T Siemens scanner. Mean Hamilton Depression Score (21 item version) was  $26.2 \pm 5.7$  for patients, mean Beck Depression Inventory scores were  $28.9 \pm 8.9$ . Mean age did not differ between groups (39.6 vs. 44.4 years). Whole brain voxelwise T-Tests were correct for multiple comparisons using a False Discovery Rate of  $q < 0.05$ .

Results: Mean global resting CBF was not different between groups (66.1 vs. 63.0 ml/100mg/min,  $T = 0.95$ ,  $p = 0.35$ ). FDR correction at  $q < 0.05$  led to a T-value threshold of 3.71 ( $p < 0.001$ ) for group comparison. Hypoperfusion in patients was detected in left middle temporal gyrus, left middle frontal gyrus, right precentral gyrus. Hyperperfusion in patients was seen in the right superior temporal gyrus.

Conclusions: ASL revealed frontotemporal hypoperfusion in patients with major depression. This is in line with previous work and the current concept of depression. However, we were unable to replicate hyperperfusion in limbic areas.