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EFFECTS OF MENTAL STRESS INDUCED MYOCARDIAL ISCHEMIA ON BRAIN FUNCTION IN PATIENTS WITH DEPRESSION.

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Objective: Coronary heart disease (CHD) patients with co-morbid depression show an increase in mortality compared to equally ill cardiac patients without depression, however the mechanisms mediating this effect remain obscure. One possibility is an increased vulnerability to stress in depressed patients with CHD. The purpose of this study was to assess the effects of stress and depression on brain function and the relationship with myocardial ischemia in CHD patients. Methods: Patients with CHD and depression (N=13) and CHD without depression (N=15) underwent imaging of the brain with positron emission tomography and [O-15] water and imaging of the heart with single photon emission tomography (SPECT) and [Tc-99m] sestamibi a mental arithmetic task and control conditions. Results: Depressed patients who became ischemic had greater decreases in anterior cingulate relative to non-ischemic depressed patients. Conclusions: These findings are consistent with dysfunction in a network of brain regions involved in the stress response in patients with CHD and depression that has direct and indirect links to the heart, suggesting a pathway by which stress and depression could lead to increased risk of heart disease related morbidity and mortality.