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### Title

Bypassing Troubles: Relation of Exhaustion, Viral Burden, and Inflammation to Depressive Symptoms After Cardiac Surgery

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CORE 2. EPIDEMIOLOGY AND PREVENTION OF CV DISEASE: PHYSIOLOGY, PHARMACOLOGY AND LIFESTYLE

SESSION TITLE: FATIGUE AND CARDIAC PATIENTS: SICK AND TIRED

## Abstract 14769: Bypassing Troubles: Relation of Exhaustion, Viral Burden, and Inflammation to Depressive Symptoms After Cardiac Surgery

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### Abstract

**Background:** Inflammation is a mechanism by which depressive symptoms and vital exhaustion (VE) may confer increased risk of adverse cardiac outcomes. **Objective:** To elucidate the relationship of post- bypass (CABG) depressive symptoms to VE, immune-mediated inflammation and pathogen burden (PB), defined as cumulative seropositive exposure to infectious pathogens.

**Methods:** In a secondary analysis of 42 patients (age  $67.5 \pm 12.6$  years, 90.5% male, 66.7% Caucasian, nonsmokers, and without malignancy, autoimmune disease or infection), depressive symptoms (Patient Health Questionnaire-9 [PHQ-9]), VE (Maastricht Interview), CBC and lipids were assessed before and 4-8 weeks after CABG. Immune markers (interleukin [IL]-6, IL-10, soluble intercellular adhesion molecule-1) and serum IgG antibodies (Herpes Simplex Virus-1 and -2, Cytomegalovirus, Epstein Barr Virus) were measured by ELISA. PB was defined as low (0-1 exposures), moderate (2-3 exposures) and high (4 exposures). Analyses included Mann-Whitney U test and logistic regression.

**Results:** Prevalence of none and mild-moderate depressive symptoms was 85.7% and 14.3%, respectively. PHQ-9 scores were correlated with preop monocytes ( $\rho = 0.393$ ,  $p = 0.035$ ), ejection fraction ( $\rho = 0.329$ ,  $p = 0.033$ ) and VE scores ( $\rho = 0.627$ ,  $p < 0.001$ ). Compared to patients without symptoms, patients with mild-moderate symptoms had higher scores for preop monocytes ( $p = 0.03$ ) and triglycerides ( $p = 0.048$ ) and for postop lymphocytes ( $p = 0.01$ ) and VE scores ( $p = 0.002$ ). Immune markers and PB were not associated with depressive symptoms. Patients with mild-moderate symptoms were more likely to have higher VE scores and tended toward elevated preop leukocytes (Table).

**Conclusion:** After CABG, depressive symptoms are associated with VE, triglycerides, monocytes, and lymphocytes. These findings reveal a viable lipid-immune pathway linking depressive symptoms to adverse cardiac outcomes.

**Table. Multivariate Logistic Regression Predictors of Mild-Moderate Depressive Symptoms Risk**

Variable	OR	95% CI	P
<b>Model 1</b>			
Age	1.006	0.874 - 1.158	0.938
Preoperative leukocytes	1.911	0.990 - 3.691	0.054
Vital exhaustion scores	1.456	1.057 - 2.005	0.022
<b>Model 2</b>			
Vital exhaustion scores	2.665	1.049 - 6.773	0.039

Model 1:  $X^2=14.993$ ,  $df\ 3$ ,  $p=0.002$ ; Nagelkerke  $R^2=0.536$ ;

Model 2 (adjusted for previous angina):  $X^2=20.535$ ,  $df\ 2$ ,  $p<0.001$ ;

Nagelkerke  $R^2=0.772$

**Cardiac surgery    Coronary artery disease    Inflammation**