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

https://escholarship.org/uc/item/7sf2b5kz

CIRCULATION, 124(21)

0009-7322

Miller, Pamela S
Evangelista, Lorraine S
Giger, Joyce Newman
et al.

2011-11-22

https://creativecommons.org/licenses/by/4.0/ 4.0

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

Pamela S Miller, Lorraine S Evangelista, Joyce Newman Giger, Otoniel Martinez-Maza, Teresita Corvera-Tindel and Lynn V Doering

Published: November 22, 2011

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 ± 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

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1.06</td>
<td>0.874 - 1.158</td>
<td>0.938</td>
</tr>
<tr>
<td>Preoperative leukocytes</td>
<td>1.91</td>
<td>0.990 - 3.691</td>
<td>0.054</td>
</tr>
<tr>
<td>Vital exhaustion scores</td>
<td>1.46</td>
<td>1.057 - 2.005</td>
<td>0.022</td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vital exhaustion scores</td>
<td>2.665</td>
<td>1.049 - 6.773</td>
<td>0.039</td>
</tr>
</tbody>
</table>

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

© 2011 by American Heart Association, Inc.