

4th International Conference on Clinical & Experimental Cardiology

April 14-16, 2014 Hilton San Antonio Airport, TX, USA

Inflammation is associated with cardiovascular disease and psychiatric disorders

Angelos Halaris

Loyola University Chicago Stritch School of Medicine, USA

Cardiovascular disease (CVD) and depressive illness are two of the world's leading health problems. CVD is the leading cause of mortality worldwide and accounts for approximately 16.7 million deaths every year. The most common types of CVD are coronary artery disease (CAD) and cerebrovascular disease (CBVD). CAD is a leading cause of morbidity and mortality in the industrialized world and it is the leading cause of death and hospital admissions in the United States. The co-morbidity between CVD and depression is remarkably high and is believed to be bidirectional. Numerous studies published over the past decades have confirmed this association and established that clinical depression is a significant risk factor for mortality in patients with coronary heart disease.

Several pathophysiological mechanisms are held responsible for the high co-morbidity between CVD and depression. In this presentation we will focus on inflammation-related parameters in attempting to shed some light on the biology underlying this co-morbidity. Inflammation is intricately related to endothelial dysfunction, atheromatosis, atherosclerosis and atherothrombosis with the associated clinical sequelae that lead to high morbidity and mortality. Over the past two decades, a number of circulating compounds have been identified as markers of inflammation and atherosclerosis. Such compounds include acute-phase proteins, C-reactive protein (CRP), fibrinogen, immunoglobulins, adhesion molecules, and cytokines. We focus on inflammation biomarkers, because most all of these biomarkers have also been shown to be abnormally regulated in patients with depressive syndromes without any evidence of other inflammatory processes, cardiovascular or immune system pathology. Fibrinogen, CRP and from within the cytokine group tumor necrosis factor alpha (TNF- α), interleukin-1 (IL-1) and interleukin-6 (IL-6) have been discussed extensively in the cardiovascular literature and some authors have made a case that CRP and depression have prognostic value in predicting adverse cardiac events.

It is widely recognized that inflammatory processes in the atherosclerotic artery may lead to increased blood levels of pro-inflammatory cytokines and other acute-phase reactants. Blood levels of IL-6 and CRP are elevated in patients with myocardial infarction or unstable angina, as are other inflammatory biomarkers, such as fibrinogen, IL-7, IL-8 and soluble CD40 ligand. These findings point to inflammation in the coronary arteries. Collectively, these circulating biomarkers indicate the presence of an acute coronary syndrome and may reflect the clinical course of the condition.

Heart failure is a serious syndrome that interferes with normal functioning and significantly impairs the capacity of an individual to lead a normal life. Although several models have been proposed to understand the pathophysiology of this syndrome, none have, so far, proven to be critical for the prevention and management of this condition. The co-morbidity with clinical depression in patients with different degrees of heart failure is high. Taken together, it is now well established that patients with CVD and patients with depressive illness have in common a number of pathophysiologic processes, notably inflammation, that account in large part of the exceptionally high co-morbidity between these disease entities.

ahalaris@lumc.edu