D6.1: Stress and Inflammation in Atherosclerosis: A Biobehavioral Approach

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Abstract:

**Introduction:** Atherosclerosis, the underlying mechanism in cardiovascular disease, is a chronic disease whereby fatty deposits cause endothelial injury resulting in inflammation. While physiologic factors such as lipid accumulation and infectious agents have been noted as the initial insults resulting in inflammation, less is known about the effects of psychological stress on the initiation of inflammation and the atherosclerotic process. Much of the research has focused on adults with less on children. Since cardiovascular disease is the leading cause of death in the US and earlier onsets have been noted in children and adolescents, it is important to understand biobehavioral factors that influence occurrence.

**Method(s):** Literature related to both acute and chronic stress and inflammation in atherosclerotic disease among adults and children was accessed through various databases. Included in this review were studies utilizing biomarkers for inflammation apparent in atherosclerotic disease (C-Reactive protein (CRP), Interleukin-6).

**Results:** Studies have linked both acute and chronic stress and atherosclerotic disease in adults. Evidence suggests that systematic inflammation is the underlying mechanism as noted by increases in biomarkers such as CRP. While interventions to reduce inflammation per se are not available, studies to reduce risk for thrombotic events using aspirin and statins have been successful in reducing CRP levels. Research with children and adolescents is limited and has focused on stress and elevations in blood pressure. Little research has been done to establish links between stress and inflammation.

**Discussion & Conclusions:** Stress has been linked to atherosclerotic disease in adults and to some extent in children. While there is some evidence linking inflammation to atherosclerotic disease, less is available linking stress to inflammation. Studies with children are constrained because atherosclerotic disease tends to be asymptomatic and there is a lack of diagnostic parameters for inflammatory biomarkers. Knowledge about underlying mechanisms for atherosclerotic disease could be translated to interventions to prevent further morbidity and/or to prevent development in both children and adults.
Abstract History:
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