

### Alpha Defensins: a Strong Evolving Biomarker for Coronary Atherosclerosis and Acute Coronary Syndromes

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Background: Increased neutrophil activation is known to be associated with atherosclerosis severity and acute coronary syndrome (ACS). Neutrophil peptides defensins are essential elements of the innate immunity and are presented in atherosclerotic plaques in humans. They are negatively involved in lipoprotein metabolism and fibrinolysis, enhance endothelial dysfunction, activate platelet aggregation/adhesion and are a potential regulator of neovascularization. We sought to investigate the relationship between neutrophil activation and atherosclerosis/thrombosis via measuring alpha-defensin levels.

Methods: Defensin was Immunohistochemically quantified in skin biopsies taken from 137 ACS patients (age 55±12) immediately prior to coronary angiography. Established biomarkers for coronary artery disease (CAD) and accepted clinical risk factors were obtained concurrently; including questionnaire for infectious/inflammatory status. We examined the correlation between defensin score and CAD severity score.

Results: Using McNemar's chi square analysis a correlation was found between the defensin score and the severity of CAD, P<0.0001.

	Defensin Score				
CAD Score	0	1	2	3	Total
0	7(A)	11(B)	20(C)	0(D)	30
1	4(B)	12(A)	12(B)	2(C)	30
2	3(C)	10(B)	10(A)	2(B)	25
3	5(D)	15(C)	16(B)	8(A)	44
Total	19	48	58	12	137
A: 37					
B: 55					
C: 40					
D: 5					

Conclusions: These data suggest high alpha-defensin score as a strong biomarker for atherosclerosis severity in patients with ACS that might become applicable for atherosclerosis/thrombosis screening. Our ongoing study will address the validity of defensins as to traditional risk factors and the inflammatory milieu.