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GLYCA AND GLYCB, NOVEL NMR BIOMARKERS OF INFLAMMATION, STRONGLY PREDICT FUTURE CARDIOVASCULAR EVENTS, BUT NOT THE PRESENCE OF CORONARY ARTERY DISEASE (CAD), AMONG PATIENTS UNDERGOING CORONARY ANGIOGRAPHY: THE INTERMOUNTAIN HEART COLLABORATIVE STUDY

Poster Contributions
Hall C
Sunday, March 30, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Prevention: Familial Hypercholesterolemia, Novel Therapies and Cardiovascular Risk
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Background: GlycA and GlycB are novel nuclear magnetic resonance spectroscopy (NMR) signals in plasma arising from the glycosylation of circulating acute phase proteins, especially fibrinogen, α1-antichymotrypsin, haptoglobin-1, α1-antitrypsin, complement C3 and α1-acid glycoprotein. These acute phase proteins have been independently associated with cardiovascular disease (CVD), but the association of GlycA and GlycB with CVD is not known.

Methods: Plasma GlycA and GlycB concentrations were determined using NMR in 2,996 pts who underwent coronary angiography for CAD determination. Multivariable logistic and Cox hazard regression analyses were utilized to determine the association between Glyc A and Glyc B and the presence of significant (≥70%) CAD and major adverse CV events (MACE = death, non-fatal MI, heart failure admission [HF], stroke and revascularization [revasc]).

Results: Pts (age = 64±12 yrs, 66% male, 26% diabetes, 42% ACS presentation, 65% CAD) were followed for 7.0±2.8 yrs. Baseline concentrations of GlycA and GlycB averaged 351±97 and 120±34 µmol/L respectively. No significant association was found between GlycA or GlycB and CAD (adjusted odds ratio [OR] per standard deviation [SD] for GlycA = 1.04 [p=0.40] and GlycB = 1.03 [p=0.60]). During follow-up, a total of 1,462(48.8%) pts experienced MACE [death = 746(24.9%), MI=746(17.6%), HF=213(7.1%), stroke=186(6.2%), revasc=668(22.3%)]. The incidence of MACE was significantly higher in pts with higher levels of GlycA and GlycB (adjusted hazard ratio [HR] per SD for both=1.12[p=0.002]). Of the pts in Q4 for GlycA (>403 um/L), 49.2% experienced MACE vs 41.5% in Q1-Q3; p=0.004; HR for Q4 vs Q1 = 1.28[p=0.010]). Similarly, MACE in Q4 for GlycB (>138 um/L) was 51.0% vs 40.8% in Q1-Q3=40.8% p=0.002; HR for Q4 vs Q1 = 1.35[p=0.004]).

Conclusion: In this large observational study of pts undergoing coronary arteriography, baseline levels of both GlycA and GlycB were strongly associated with future MACE. Further studies are needed to determine the independence of these novel biomarkers from other inflammatory biomarkers such as C-reactive protein and fibrinogen.