Predictors of high-sensitivity cardiac troponin in stable patients undergoing elective coronary angiography

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**Methods:** Stable patients undergoing echocardiography and elective coronary angiography were enrolled (n=2046). HsTnT was determined before diagnostic procedures. A multivariable linear regression model for levels of hsTnT at presentation was created to identify independent predictors for hsTnT and to evaluate the strength of association of these factors with levels of hsTnT.

**Results:** Out of the 2046 subjects enrolled, 1422 (69.0%) had detectable levels of hsTnT (≥0.03 ng/L) and 315 (15.3%) showed levels above the 99%-percentile of a healthy reference population (14 ng/L). Several variables showed an association with levels of hsTnT in univariable analyses (Figure 1). Multivariable analysis identified age, sex, smoking, arterial hypertension, diabetes, hemoglobin, renal function (GFR), use of β-blockers and ACE inhibitors, left ventricular ejection fraction, NYHA class, and results of coronary angiography as independent predictors of hsTnT. The five variables with highest strength of association with levels of hsTnT were age, sex, renal function, left ventricular ejection fraction, and results of coronary angiography.

**Conclusion:** Levels of hsTnT are significantly associated with multiple clinical and laboratory variables. Age, sex, and renal function show the highest strength of association with levels of hsTnT.

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**Figure 1:** RLS in stenotic vs non-stenotic segments

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**Table 1:**

<table>
<thead>
<tr>
<th>Event</th>
<th>Crude HR</th>
<th>Adjusted HR</th>
<th>SVG group (n=122)</th>
<th>Native group (n=777)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>1.63 (1.09-2.37)</td>
<td>0.02</td>
<td>1.49 (0.94-2.35)</td>
<td>0.07 (0.02-1.30)</td>
</tr>
<tr>
<td>MI</td>
<td>3.22 (1.36-6.32)</td>
<td>0.002</td>
<td>2.56 (1.50-4.40)</td>
<td>0.02 (0.01-0.03)</td>
</tr>
<tr>
<td>TLR</td>
<td>2.26 (1.60-3.13)</td>
<td>-0.001</td>
<td>2.64 (1.81-3.80)</td>
<td>-0.001 (0.01-0.01)</td>
</tr>
<tr>
<td>Definite ST</td>
<td>3.65 (1.09-12.3)</td>
<td>0.04</td>
<td>7.89 (2.02-30.1)</td>
<td>0.004 (0.03-0.04)</td>
</tr>
</tbody>
</table>

**Conclusions:** Among patients with prior CABG, SVG intervention was associated with a trend for higher mortality and with significantly higher risks of MI, TLR and definite ST as compared with those who underwent PCI for the native coronary artery (Native group).
segments of the LV. Contrarily, absolute values of SR increased during DSE in all segments. Dispersion of the change in strain and designation of segments are presented in Figure.

Conclusions: We observed opposite direction of the longitudinal strain changes during DSE between apical and basal 2/3 part of myocardium. This significant dispersion among nonischemic LV segments must be considered in LV function quantification during stress echo.

P3992 | BEDSIDE
Predictive values of hemoglobinA1c and 1,5-anhydro-d-glucitol for the SYNTAX score and prevalence of in- and out-of-artery disease
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Purpose: HemoglobinA1c (HbA1c) is associated with an increased risk of Coronary Artery Disease (CAD). Serum 1,5-Anhydro-d-Glucitol (1,5-AG) levels rapidly decrease concomitantly with the excretion of glucose in urine, and serum 1,5-AG is a useful clinical marker for short-term glycemic status. 1,5-AG reflects glycolysis excursions more sensitively than HbA1c, especially in the postprandial state. Postprandial hyperglycemia is one of the important risk of CAD. The aim of this study is to compare HbA1c with 1,5-AG as the predictor of CAD.
Methods: The subjects were 273 consecutive patients who underwent their first coronary angiography from July 2011 to January 2013. The relationship between complexity of CAD and HbA1c or 1,5-AG levels were evaluated. The correlation between complexity of CAD and HbA1c or 1,5-AG were also assessed. The complexity of CAD was evaluated by the SYNTAX score. The complex-lesion was defined as the SYNTAX score ≥23 according to previous studies.
Results: The patients with CAD presented significantly higher HbA1c and lower 1,5-AG levels than the patients without CAD (6.4±8.3 vs 18.2±9.3, p<0.0001, respectively). 1,5-AG was an independent predictor of CAD even coronary risk factors (include diabetes mellitus) were adjusted (Odds ratio:0.931, 95% CI 0.897-0.966, p=0.0001). In contrast, HbA1c did not present significant predictive value of CAD in the adjusted model. The areas under the receiver-operating characteristic curves (AUC) of HbA1c and 1,5-AG to predict CAD were 0.632 (95% CI:0.565-0.699, p<0.0001) and 0.674 (95% CI:0.611-0.738, p<0.0001), respectively. In contrast, HbA1c showed higher AUC than 1,5-AG when they predict complex-lesions (the SYNTAX score ≥23) (HbA1c: 0.656, 95% CI 0.655-0.748 vs p=0.0001 and 1,5-AG: 0.617, 95% CI 0.528-0.706 p=0.016). Both HbA1c and 1,5-AG presented significant correlation between the SYNTAX score and HbA1c or 1,5-AG levels were evaluated. The correlation between complexity of CAD and HbA1c or 1,5-AG were also assessed. The complexity of CAD was evaluated by the SYNTAX score ≥23 according to previous studies.
Conclusions: 1,5-AG level independently predicted prevalence of CAD, and the predictive value was stronger than that of HbA1c. In contrast, HbA1c may be more useful to predict complex-lesions than 1,5-AG. Both HbA1c and 1,5-AG levels showed significant correlation with the SYNTAX score.

P3993 | BENCH
Genetic variability of fibrinogen affects differentially inflammation, coagulation and endothelial function of patients with advanced atherosclerosis
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Purpose: Coronary artery disease (CAD) patients have increased levels of thrombotic and inflammatory biomarkers, impaired endothelial function and characterized by increased incidence of myocardial infarction (MI). Fibrinogen is an important inflammatory biomarker. However the impact genetic variability of fibrinogen in inflammation and coagulation processes and endothelial function remains unknown. Therefore, we investigated whether a genetic polymorphism on fibrinogen beta chain (G455S) affects specific parameters of the aforementioned processes.
Methods: Genotyping was performed in 456 CAD patients and 272 controls. The G455S polymorphism was determined by polymerase chain reaction (PCR) and the specific HaeIII restriction enzyme. Fibrinogen were measured by the von Clauss method. IL-6 and sCD40L levels were assessed by ELISA, while endothelial function was measured by FMD of the brachial artery.
Results: Genotype distribution was GG: 54.6%, GA: 36.8%, AA: 8.6% for controls and GG: 50.1%, GA: 42.0%, AA: 7.9% for CAD. In CAD patients, 455AA homozygotes had lower FMD (%) than 455GG carriers, however this difference was not significant (2.8±2.2 vs 2.9±1.8, p<0.05), while this occurred also in controls (5.7±2.7 vs 6.5±1.5 for AA vs GA allele carriers, p<0.05). Although interleukin 6 levels were increased in patients with CAD compared to controls (4.6±3.1 vs 3.4±1.2, p<0.01), the G455S polymorphism did not affect IL-6 levels (GG+GA vs AA) both in CAD and controls (p<0.05). In a similar way, sCD40L levels were significantly higher in CAD compared to controls (2.07±1.47 vs 1.82±1.68, p<0.001). No difference was observed in sCD40L across the study genotypes both in controls and in CAD (p<0.05). Importantly, the present polymorphism modified significantly fibrinogen levels (GG+GA vs AA) not only in controls (366.6±85.9 vs 439.1±122.5, p<0.05), but also in CAD (426.0±122.7 vs 521.8±113.1, p<0.001). Finally, no difference was observed in CAD patients for the incidence of previous MI between 455GG carriers and 455AA homozygotes (OR: 0.84, 95% CI (0.328-3.085), p<0.05).
Conclusions: The G455S genetic polymorphism does not modify inflammatory process and endothelial function. However, it has a significant impact on fibrinogen levels both in controls and in patients with coronary artery disease. Our findings suggest that the G455S polymorphism disturbs the coagulation process and promotes atherosclerosis, through its significant effect on fibrinogen.

P3994 | BEDSIDE
Lower 5-year-mortality in female versus male patients with stable coronary artery disease in clinical practice: results of the Star-registry
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Background: Gender differences in treatment and outcome of patients with coronary artery disease especially with acute coronary syndromes have been well described. Little is known about the impact of gender on long-term outcome of patients with stable coronary artery disease (CAD) in clinical practice.
Methods: Between Sept 2001 and March 2003, a total of 2,002 consecutive patients with angina pectoris and first angiographic diagnosis of CAD were enrolled in the STAR-Registry (50 centres). We examined the impact of gender on 5-year mortality of CAD in clinical practice in Germany.
Results: Of 2002 patients with stable CAD, 600 patients (30.0%) were female, 1402 male (70.0%). Female patients were 5 years older and often had diabetes. No differences were observed in other co-morbidities. Female patients less often had multi-vessel disease and impaired LV-EF as compared to male patients. Female patients were more likely to undergo repeated subsequent PCI during the 5-year follow-up, and less likely to be referred to CABG. In univariate analysis female patients had similar 5-year mortality as compared to male patients. However, after correction for differences in age, prevalence of diabetes, impaired LV-EF as well as for revascularisation therapy, female gender was associated with lower 5-year mortality in stable CAD in clinical practice (OR 0.75, 0.57-1.00).

P3995 | BENCH
Exercise-induced changes in circulating high sensitive troponin T, but not N-terminal pro B-Type natriuretic peptide, are linked to coronary artery disease
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Aims: We tested the effects of exercise intensity, sampling intervals, degree of coronary artery stenosis, and demographic factors on circulating N-Terminal pro-B-Type Natriuretic Peptide (NT-proBNP) and cardiac Troponin T (cTnT) in subjects suspected of Coronary Artery Disease (CAD).

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