Coimbra, Portugal

Endothelial dysfunction versus early atherosclerosis: a study with application and prognosis of ACS patients with less than 35 years at diagnosis.

Purpose: The investigation in acute coronary syndromes (ACS) is focused on identifying major coronary events. Characterization of microstructural changes of the vessel wall in tandem with endothelial dysfunction may have potential prognostic importance for detection of ischemic heart disease (IHD).

Methods: We studied 5 patients with IHD, found to have normal or near normal angiograms. These patients received graded doses of intracoronary acetylcholine (10-6, 10-5 and 10-4 mol/L over 3 minutes at 10 minutes intervals) to assess endothelial dysfunction. Epicardial endothelial dysfunction was defined as ≥30% epicardial vessel diameter reduction during testing. An intracoronary bolus dose of 1000 μg of nitroglycerin was administered to relieve vasoconstriction; IVUS was performed 5 minutes after relief of vasoconstriction and OCT 20 minutes later. The OCT imaging wire was positioned at the site, and 1 cm proximal and distal to the observed coronary vasoconstrictor abnormality. Each OCT image was analyzed by two independent observers who were blinded to the results. Using OCT imaging, the intima is identified by a signal-rich layer near to the lumen, the media by a signal-poor middle layer, and the adventitia by a signal-rich outer layer. Loss of layered architecture reflects early sign of atherosclerosis.

Results: A total of 7 coronary segments showed vasoconstriction. Wall morphometry was evaluated by IVUS. Subjects with normal smooth coronaries exhibited a thickness of the coronary wall ≤1 mm. We obtained a total of 83 OCT images. There were 40 images of “dysfunctional” sites and 34 of the control segments. Of the 49 images of “dysfunctional” 39 (9.1%) showed the usual layer structure of a normal artery (three-layer structure: intima, media, and adventitia), and the remaining 40 (81.6%) showed early structural changes (single intimal thickened layer up to 380 micron). 16 of these 40 images revealed small signal-poor regions compatible with lipid deposits. Imaging of the control segments showed the usual three-layer structure in 54 (14.7%) images, small signal-poor regions in 14 (41.2%) images, and early structural changes in the remaining 15 (44.1%) images.

Conclusions: Our findings indicate that endothelial dysfunction and early atherosclerosis, although related in many coronary segments, may exist separately. Functional alterations can be identified safely at a stage when atherosclerotic lesions are not detectable by any imaging technique. Acetylcholine testing may be useful in designing early effective interventions that restore endothelial function.

P3101 | BEDSIDE
Acute coronary syndrome up to 35 years: what to expect?


Purpose: The investigation in acute coronary syndromes (ACS) is focused on middle aged patients. Therefore, it is important to better characterize the younger population with ACS. We aim to assess the clinical characteristics, management and prognosis of ACS patients with less than 35 years at diagnosis.

Methods: We evaluated 4306 patients, admitted to an intensive care unit for ACS, from May 2004 to November 2012. The patients were divided in two groups according to age: group 1 - age < 35 years (n=36, 0.8%); group 2 - age ≥ 35 years (n=4300). The patients underwent a clinical and laboratorial characterization. The mean follow-up time was 83±72 months.

Results: Group 1 patients (32±9±2) were mainly men (75% vs. 67.4%, p<0.01) and had a higher prevalence of ST segment elevation ACS (61.1% vs. 32.6%; p<0.001). Some cardiovascular risk factors were more frequent: smoking (66.6% vs. 16%, p<0.001), sedentary lifestyle (38.9% vs. 18.5%, p<0.005) and family history of ACS (22.2% vs. 10.8%, p<0.05). Hypertension (33.3% vs. 74.6%, p<0.001), dyslipidemia (39.3% vs. 71.9%, p<0.001) and type 2 diabetes (3.2% vs. 28.1%, p<0.001) were less prevalent. Group 1 patients had lower HDL (33±3±6 vs. 39.5±11.3 mg/dL, p<0.05), fasting glucose (96±4±9 vs. 137±6±6 mg/dL, p<0.01) and oral glucose tolerance test (142±2±4.9 vs. 174±8±5.1 mg/dL, p<0.05). Hemoglobin (14.6±1±6 vs. 13±4±1.9 g/dL, p<0.005) and platelets (263±8±65 vs. 218±8±67 g/dL, p<0.05) were higher. In group 1, 83.8% of patients were submitted to angiography, that revealed a numerically higher prevalence of coronary arteries with non-significant stenosis (30% vs. 17.9%, p<0.08) and single-vascular disease (60% vs. 36.4%, p<0.05). The clinical risk of the patients, as assessed by the GRACE (99.6±21.3 vs. 135±32.9, p<0.001) or the TIMI (1.5±1 vs. 2.5±1.4, p<0.001) risk scores, was lower. No intra-hospital deaths were recorded in this group (0% vs. 5.8%) and follow-up all-cause mortality was also lower (2.9% vs. 19.6%, Log-rank p<0.05).

Conclusions: Patients up to 35 years old diagnosed with ACS have a specific risk profile and have lower short term and long term mortality.

P3102 | BEDSIDE
Coronary artery disease burden and long-term outcomes in patients with human immune deficiency virus (HIV) undergoing percutaneous coronary intervention: results from a single-center registry


Purpose: Coronary artery disease (CAD) is a frequent complication of HIV infection and patients with HIV are increasingly referred for percutaneous coronary intervention (PCI). Despite microstructural changes of the vessel wall in tandem with endothelial dysfunction may have potential prognostic importance for detection of ischemic heart disease (IHD).

Methods: We followed 112 consecutive patients with HIV who underwent PCI from 1999 to 2011. Quantitative coronary angiographic (QCA) analysis was performed independently in all patients. We determined that the incidence of adverse events including death, myocardial infarction, and revascularization. The mean follow-up period was 2.4 years.

Results: We identified 112 HIV patients with 164 lesions undergoing PCI during the study period. Patients with HIV were more frequently male (n=88, 79%) and non-Caucasian (n=17, 15%) with a mean age of 57 years. The majority of patients were treated with DES (n=66, 59%). Most lesions displayed minimal calcification (67%), modest lesion length (16.6 mm±10.6) with a diameter stenosis of 69%, and an overall SYNTAX score of 13.5±8.9. The rate of all-cause mortality, MI or target vessel revascularization at 3 years was 29.5% while 19% of patients were readmitted due to cardiac causes (Figure 1). Similar results were obtained for both BMS and DES treated patients (29.8% vs. 29.2%, p=0.95).

Conclusions: Although the angiographic pattern of CAD in HIV patients suggests a relatively low-risk phenotype, the risk for adverse events after PCI, particularly revascularization, is significant. These findings suggest that atherosclerosis progression and restenosis is altered in the setting of HIV infection.

P3103 | BEDSIDE
The ratio of contrast media volume to the estimated glomerular filtration rate predicts 3-year cardiovascular renal outcome in chronic kidney disease patients with emergency coronary procedure


Backgrounds: The ratio of contrast media volume to the estimated glomerular filtration rate (CMV/eGFR) was reported to be a predictor of contrast-induced nephropathy (CIN). However, it remains unclear whether CMV/eGFR would pre-