Methods: The test apparatus consisted of 3-mm diameter glass tubes of 150 mm in length. The thrombi were left for either 6 or 12 hours and ten models of tubes were used: straight, with a single bend and with two bends. Two types of catheter were tested: the Export® aspiration catheter (EAC) and the Proxis® embolic protection system (PES). The main assessment criterion was total thrombectomy.

Results: Total thrombectomy was achieved in only 55.3% of the tests and no difference appeared between the two systems. Total thrombectomy was achieved more frequently with 6-h thrombi than with 12-h thrombi for the two techniques, 62.5% vs. 42.5% (p<0.018) and 67.5% vs. 48.7% (p<0.025) for EAC and PES catheter, respectively. In contrast, total thrombectomy was more frequent in straight tubes and in tubes with a single bend than in tubes with double bends, respectively for EAC (64% vs. 44.8%, p=0.028) and for PES (85.9% vs. 35.4%, p<0.001).

Conclusion: The use of thrombectomy in the invasive management of acute coronary syndromes is growing. Our work on a “laboratory bench” reveals important technical differences. In conclusion, in clinical practice, we speculate that the catheter system must be chosen according to both the artery anatomy and the delay between chest pain and PCI.

Influence of diameter on total thrombectomy with the Export catheter: A laboratory bench study: smaller is better?

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Background: Recent studies have shown that thrombectomy improves myocardial reperfusion and outcomes, and reduces infarct size by removing the clot and/or limiting distal embolization. However, in practice, the results of thrombectomy are not always optimal. The aim of this laboratory bench study was to evaluate the impact of diameters, angles and thrombus age on the success of thrombectomy.

Methods: The test apparatus consisted of glass tubes of 150 mm in length with 5 different diameters: 2.0, 2.6, 3.0, 3.6 and 4 mm. For each diameter, 3 angles were tested: 0°, 90° or 120° and 2 ages of thrombi: 3 or 6 hours old. We used human blood drawn from healthy volunteers, who had received neither antiplatelet nor anticoagulation therapy. Thrombectomy was performed with an Export catheter (Medtronic®) and the main assessment criterion was total thrombectomy (TT).

Results: Total thrombectomy was achieved in 71.2% of tests. TT was obtained only for small diameter tubes (2 mm) and we observed a significant reduction in aspiration with increasing diameter, respectively, 100% for 2.0 mm, 81.3% for 2.6 mm, 89.6% for 3.0, 94.2% for 3.6 mm and 31.3% for 4 mm tubes, (p<0.001). In contrast no difference was observed between 3-hour-old (73.3%) and 6-hour-old thrombi (69.2%) (p=0.476). In addition, the presence of one angle did not influence the success of thrombectomy either: 77.5% in 0°, 66.3% in 90° and 70% in 120° tubes (p=0.278).

Conclusion: In the laboratory, tube diameter was a major factor that influenced the quantity of thrombus removed. With this new data, further studies are needed to evaluate: a) the modalities of the aspiration, b) the impact of other catheters, c) and the characteristics of the artery and lesion.
Of the 105 patients, 62 (59.0 %) had complete STR, 43 (41.0%) experienced complete not STR. Not complete STR group had a trend to a higher mean admission glucose level (1.8 ± 1.5 g/l vs 1.4 ± 0.5 g/l, p = 0.1) and a significant higher glycated haemoglobin level (6.8 ± 1.9 % vs 6.1 ± 0.9 %, p = 0.008). However no difference was observed for plasma insulin level (21.4 ± 23.6 mU/l vs 21.1 ± 18.4 mU/l), index Quiccki (0.32 ± 0.07 vs 0.30 ± 0.04) and index Homa (142.3 ± 171.4 vs 146.7 ± 158.6) respectively in complete and not complete STR groups.

In conclusion, this study confirms the association between hyperglycemia and electrocardiographic signs of complete reperfusion in patients with STEMI after PCI but this relation does not seem to be related to a absolute plasma insulin deficiency or an insulin resistance.

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The influence of left ventricular systolic function and clinical status of ischemia on plasma levels of metalloproteinases -9 and -7 and their inhibitors in patients with coronary artery disease
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Purpose: To describe the enzymatic profile of plasma matrix metalloproteinases (MMP7 and MMP9) and their tissue inhibitors (TIMP1 and TIMP2) in different categories of patients (pts.) with coronary artery disease (CAD), and their relationship with clinical status, left ventricular (LV) function and remodelling.

Methods: Total MMP7, active fraction of MMP9, TIMP1 and TIMP2 were determined in 68 consecutive pts with confirmed CAD (Group A, 56.6 ± 9.9 years, 75% men) and compared with a control group of 23 pts. with normal coronary arteries (Group B, 58.1 ± 10.7 years, 56.5% men). LVEF was calculated by Simpson’s method. We calculated global longitudinal (L), circumferential (C) and radial (R) strain (S) and strain rate (SR) values as the average of segmental values by 2D strain analyses.

Results: The active form of MMP9 differed significantly between group A and B, as did the MMP9/TIMP1 and MMP9/TIMP2 ratios (8.78±10.0 ng/ml vs 3.33±4.0 ng/ml, p=0.016; 5.43±3.4 vs 0.85±0.9, p=0.039 and 11.60±5.2 vs 3.71±1.0, p=0.022, respectively). Group A included 35 pts. with acute coronary syndrome (ACS) and 33 pts. with stable angina (SA), with similar profile of LVEF and number of coronary arteries involved. The were no significant differences in MMP7, MMP9/TIMP1 and MMP9/TIMP2 ratio between normal and SA group, but only between normal and ACS group (p=0.02 for MMP9). In group A, only MMP7, TIMP1/MMP7 and TIMP2/MMP7 ratio correlated with markers of systolic function: LVEF (p <0.05 for all), and global LS (p<0.01, r=0.40, r=0.23, respectively, p <0.05 for all). There were no significant correlations between MMP or TIMP and global C and R or SR.

Conclusion: There were no significant changes in extracellular matrix markers in pts. with chronic stable ischemia vs normals. Only active form of MMP9 and its ratio with TIMP differed significantly in ACS. Total MMP7 and its ratio with TIMP correlated with parameters of LV systolic function even in pts. with normal LVEF.

050
Left ventricular systolic dysfunction in patients with coronary artery disease and normal electrocardiogram: results from INDYCE registry
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Background: Left ventricular systolic function may be altered in patients with coronary artery disease with or without previous myocardial infarction (MI). However, whether left ventricular ejection fraction (LVEF) is reduced (<50%) in patients with stable coronary artery disease with normal electrocardiogram (ECG) is poorly documented.

Methods and results: Echocardiography was performed in the 3119 patients with stable coronary artery disease included in the prospective multicenter INDYCE registry, 875 patients (28%) had a normal ECG. These patients (66±10 years old, male: 79%, BMI: 26±3) had a mean LVEF= 59±4.9% (<40%, 1%, >40%<50%: 8%, >50%: 91% of the patients). Twenty six percent of them had a previous MI. Eighty four percent of them had undergone coronary revascularisation (CABG: 20% and PCI: 68%), 19% had diabetes, 80% dyslipidemia and 56% high blood pressure; 3% of the patients had been hospitalized for acute heart failure (HF) in the previous year; 39% were symptomatic for dyspnea NYHA class 2 or 3, 14% for angina pectoris. Sixty nine percent of them received betablockers. BMI (p=0.01), male gender (p=0.01), dyspnea NYHA class 2-3 (p<0.0001) and hospitalization for HF in the previous year (p=0.01) were significantly associated with LV systolic dysfunction in univariate analysis. In multiple logistic regression including all parameters with a p value <0.05 in univariate analysis, male gender (chi²=9.1, p=0.002), NYHA class 2-3 (chi²=6.2, p=0.01) and BMI (chi²=6.6, p=0.01) were independently associated with LV systolic dysfunction. Previous MI, HF decompensation, revascularisation, presence of angina pectoris were not significantly associated with LV systolic dysfunction in this population.

Conclusions: LV systolic function is significantly altered in 9% of patients with stable coronary artery disease with normal ECG in INDYCE registry. Male gender, NYHA class 2-3 and BMI seem to be independently associated with LV systolic dysfunction in this population.

051
The epidemiological and therapeutic profile of Moroccan woman coronar disease
(Series of 264 Patients)
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The cardiovascular risk in women increases with age to join the cardiovascular risk in men; it is the leading cause of mortality. In Morocco as in developing countries the coronary artery disease in women is increasing and its management remains inadequate.

We report a retrospective study conducted at the cardiology center at the University Hospital IBN Rochd of Casablanca in Morocco from January 1, 2008 to January 1, 2010, this study concerned 264 patients. Women represent 31.8% of all coronary managed in the service, their mean age was 62.3 years, 70% postmenopausal, 46% hypertensive, 30% diabetic, 14% had renal failure at the stage of hemodialysis, and 10% have already done an ischemic stroke. 67% of our patients had an LV EF ≥ 50%. 48.97% were thrombolysis H12 before the pain. 16% had complete revascularization with 4.77% in the acute phase, 78 angio-plasty were performed with 15-eluting stents.

The female population coronary presents real differences with the male population with a poorer prognosis even after an invasive procedure. Several female reasons are advanced to explain this difference: higher average age, the higher proportion of diabetics and the diameter of coronary vessels smaller in the female population.

In our Moroccan context the coronary artery disease in women is indeed very common but remains under diagnosed and under treated because of the non-Public Education and interventional cardiology centers that do not cover the entire territory of Morocco.