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 Proxi® 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 consequence, 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?

Carole Richard (1), Luc Lorgis (1), Anne Sophie Leromain (2), Maxime Fayard (3), Bernard Collin (4), Nathalie Garnier (2), Marie Pierre Guenfoudi (2), Marianne Zeller (4), Claude Touzery (1), Marie Hélène Guignard (2), Luc Rochette (4), Yves Cottin (1)

1 CHU Bocage, Cardiologie, Dijon, France – (2) CHU Bocage, Pharmacie, Dijon, France – (3) Centre Hospitalier, Cardiologie, Chalon/Saone, France – (4) IFR 100 santé-STIC, LPPCE, Dijon, France

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 only 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, 54.2% 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=0.478). 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.

Are the patients benefiting from a coronaryography well-informed?

Evaluation of written information efficacy.

Marine Vergès, Francois Roubille, Florence Leclercq, Jean-Marc Davy, Christophe Piot, Jean Luc Pasqué

CHU Arnaud De Villeneuve, Département de Cardiologie, Montpellier, France

Introduction: prior information in the realization of an invasive intervention is crucial. Indeed, the patient has to know theoretically his disease, diagnostic and therapeutic means, but also the risks of the used technique. The habits of information vary many from one center to another, in spite of the proposition of an information leaflet written by the French Society of Cardiology. Our aim was to evaluate the efficacy of the written information on patients admitted for coronary arteriography.

Methods: Among patients hospitalized for realization of a programmed coronaryography, a questionnaire was delivered before the information leaflet. Patients are asked questions tested (27 items) before and after the reading of the information sheet (not limited time), about coronaryography indication, modalities, benefits, possible complications ...

Results: 34 patients were included: all knew hospitalization reason, 86 % were men, middle-aged 65 years old (IC95 % 60-70). 34 % (15-54) had studied in higher education. 97 % had had information before. Only 56 % (38-74) were informed about the mode of anesthesia, 36 % (19-53) duration, 69 % (53-86) the injection of iodine, 44 % the risk of allergy, 53 % the risk of bruise, 15 % of the cardiac risks, 21 % the renal risks. 71 % knew the diagnostic benefits, 44% the possible coronary angioplasty, 17 % the eventuality of a bypass surgery. The delivery of the information leaflet didn't modify the knowledge on most of these items, in particular the modalities and the profits. The risks were known significantly better for the allergy (p=0.019), the bruise (p=0.018), the cardiac risks (0.001).

Conclusions: The population benefiting from a coronaryography considers to be enough informed. However, knowledge of the modalities, profits and risks are very low. The delivery of the consensual leaflet doesn't allow improving the situation, except as far as concerned the complications. Better information is necessary.

Unlike hyperglycemia, insulin deficiency and insulin resistance index are not associated with ST-segment resolution after primary percutaneous coronary intervention for acute myocardial infarction.

Jean Yves Wiedemann (1), Laurent Jacquemenin (1), Olivier Roth (1), Ronan Le Bouar (1), Mahmoud Moussaoui (1), Jacques Levy (1), Jean Pierre Monassier (2)

(1) CH de Mulhouse, Cardiologie, Mulhouse, France – (2) Clinique du Diaconat, Mulhouse, France

Hyperglycemia is a powerful predictor of worse outcome after ST-segment elevation myocardial infarction (STEMI). Previous studies showed that hyperglycemia could be related to impaired myocardial reperfusion. This relation may be explained by absolute or relative insulin deficiency resulting in increasing toxic effect of circulating free fatty acids or in reducing glucose use in anaerobic manner in myocardium.

The present study evaluates glycemic parameters, plasma insulin level, insulin resistance by index Quicki (1/log insulin + log glycerina in mg/ID) and index Homa (insulin x glycerina in pmol/L/22.5) in 105 patients with STEMI and successful percutaneous primary coronary intervention (PCI). The maximum ST elevation of single electrocardiogram (ECC) lead before and 60 minutes after PCI was measured and patients were then divided into 2 groups according to the degree of ST-segment resolution (STR): not complete (<70%) or complete (≥70%).