025

Very low dose myocardial perfusion imaging with 1 mSv using cadmium-zinc-telluride (CZT) cameras and Tc99m-sestamibi

Bernard Songy [Orateur] , Ornella Mirensky, David Lussato, Mathieu Queneau, Mohamed Guernou
Centre Cardiologique du Nord, Imagerie Scintigraphique, Saint Denis, France

Background: Myocardial perfusion imaging is an essential tool for management of coronary artery disease but leads to relative high radiation exposure (average: 20 mSv, *Berrington de Gonzalez, Circulation 2010*) and contributes up to 20% of the estimated annual collective radiation dose. We previously published validation of new CZT cardiac cameras, improvement of diagnosis performances and reduction of dosimetry lower than 10 mSv with thallium (*JESFC 2011*).

Objectives: We used new cardiac CZT cameras to decrease to only 1 mSv the effective dose with technetium agents.

Methods: We prospectively studied 100 consecutive patients without previously known coronary artery disease referred for diagnostic stress myocardial perfusion imaging. We injected at stress a low dose of Tc99m-sestaMIBI (1.75 MBq/kg), performed immediate stress myocardial scan in 10 mn with a CZT camera GE DNM 530c. We practiced rest myocardial scan 4 hours later only when stress images were abnormal, with injection of a treble activity.

Results: Patients were 59 males and 41 females.There weight was 78±15 kg. They received at stress 135±30 MBq of Tc99m-sestaMIBI. Total and myocardial acquired counts were 1092±308 kcts and 317±91 kcts. Quality of scan was excellent in 82 cases and acceptable in other cases. The results were normal in 90 cases and abnormal in 10 cases (3 artifacts,4 ischemia and 3 unknown myocardial infarction scar). Normal stress ejection fraction was 68± 7%, end-diastolic and end-systolic volumes were 72±27 and 23±11 ml. The effective dose at stress was 0.79±0.08 mSv for men and 1.02±0.07 mSv for women. The rest activity (average 430 MBq) leads to an additional dose of 3.02 mSv for men and 3.89 mSv for women.

Conclusions: With reduced activities of Tc99m-sestaMIBI, CZT cameras give high quality imaging. It leads to a decrease of equivocal results and a low ratio of patients needing an additional rest scan. The effective dose is thus very low, less or equal to 1 mSv in most cases.

026

Pro-adrenomedullin (MR-proADM) can predict short and long term mortality in STEMI patients

Johanne Silvain [Orateur] (1), Farzin Beygui (1), Maguy Bernard (2), Guillaume Cayla (1), Stephen A. O'Connor (2), Anne Bellemain-Appaix (1), Olivier Barthelemy (1), Delphine Brugier (3), Jean-Philippe Collet (1), Gilles Montalescot (1)
(1) AP-HP, CHU Pitié-Salpêtrière, Cardiologie, Paris, France – (2) AP-HP, CHU Pitié-Salpêtrière, Laboratoire de Biochimie, Paris, France – (3) Inserm UMRS 937, Institut de Cardiologie, Paris , France

Background: Midregional pro-Adrenomedulin (MR-proADM) appears to be a powerful predictor of adverse outcome after AMI when measured 3 to 5 days after symptoms onset.

Objectives: We sought to assess whether (MR-proADM) measured at admission would correlate with the outcome in ST-segment elevation myocardial infarction patient treated with primary PCI.

Methods: We measured plasma MR-proADM in 283 consecutive STEMI patients (74.8% men, mean age 64.2 ± 15 years) immediately after the sheath insertion and before the primary PCI. We assessed the relation between MR-proADM and mortality (in-hospital and 1year of follow-up) and compared them to the prognostic value of troponin I (peak value) and the TIMI risk Score for STEMI patients.

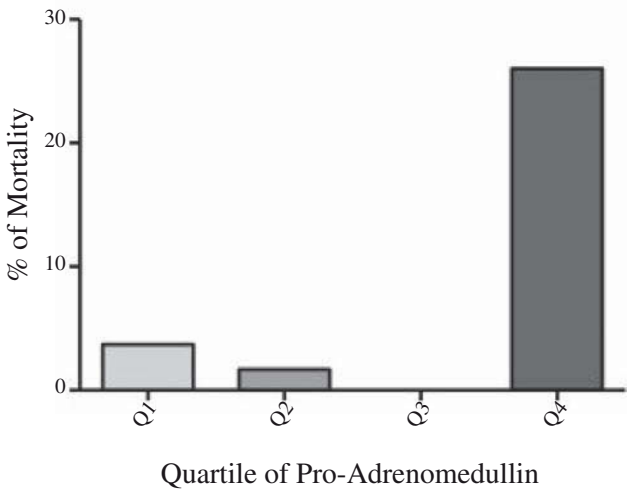
Results: All cause mortality was 4.5% at discharge and 7.3% at the end of the follow-up (365 days). The MR-proADM was increased in patients who died compared with survivors (median 1.27 nmol/l, IQR [0.99 to 3.16 nmol/l], vs. 0.53 nmol/l, range 0.39 to 0.68 nmol/l], p < 0.0001).

The areas under the receiver-operating characteristic curve for long-term survival (one year) for MR-proADM, Troponin I (peak value in µg/l) and TIMI Risk Score were 0.79 (0.64-0.95) p<0.001, 0.58 (0.49-0.68) p=0.06, and 0.67 (0.55-0.79) p=0.01 respectively.

Findings were similar for in-hospital mortality 0.77 (0.55-0.98) p=0.002 for MR-proADM.

Conclusions: Early measurement of MR-proADM during the acute phase of AMI is a powerful predictor of short and long term mortality in STEMI patients.

The MR-proADM may represent a clinically useful marker of prognosis during AMI.



Pro-ADM and death at 1 year

027

Impact of the systematic use of DES on the clinical outcome in diabetic patients

I. Jousten [Orateur], A. Raptis, Jacques Jamart, P. Chenu, V. Dangoisse, L. Gabriel, A. Guedes, B. Marchandise, Erwin Schroeder
CHU Mont-Godinne, Cardiology, Yvoir, Belgium

Background: In November 2003, DES were reimbursed by the belgian Health Insurance System for diabetic patients, based on their higher restenosis rate after BMS implantation and improved outcome in randomized trials.

Aim: To assess the impact of the systematic use of DES in diabetic patients on procedural management and clinical outcome (= stent thrombosis, TL revascularization and death).

Methods: We compared procedural data and outcome in consecutive series of 366 (1.1.2000% 1.11.2003) PCI procedures (hospital stays) by BMS versus 276 PCI procedures with at least one DES (1.11.2003% 30.6.2006) performed at our institution.

Results: Outcome data after hospital discharge are based on Kaplan-Meier survival curves.

Stent thrombosis includes definite, probable and possible cases.

Conclusion: In our consecutive series, the beneficial effect of systematic DES implantation on repeat TLR in diabetic patients was less impressive than expected, based on previous randomized trials. However, the rate of stent thrombosis was not increased. Overall mortality was not reduced (at 4 y.) despite better secondary prevention measures. Changes in revascularization strategies in diabetic patients (indications, procedural) may explain partially the reduction of the expected benefit by systematic use of DES in routine clinical practice in this single center all-comes registry.

Table – Results

	BMS group n=366	DES group n=276	p BMS vs DES
Age (y.)	64.8	65	NS
BMI	29.8	29.9	NS
Insuline (%)	26	21	NS
Antihypertensive therapy (%)	49.5	57.2	=0.05
Hypolipemic therapy (%)	39.6	51.1	<0.01
Prior CVD	10.9	16.3	<0.05
LV Ej. Fraction >50% (%)	71.6	78.7	=0.05
Anti-GP IIB IIIA before	5.2	10.5	=0.01
Number of stents/procedure	1.5	1.7	=0.01
Number of segments/procedure	1.6	1.7	NS
Stent length/procedure	22.8	23.6	NS
Hospital mortality (%)	2.5	1.1	NS
Stent thrombosis (%) 1 y.	5	5.1	
4 y.	7.5	7.1	NS
Repeat TLR (%) 1 y.	14.9	7.1	
4 y.	22.5	16	=0.09
Overall death (%) 1 y.	9	9	
4 y.	17	24	NS

028

Do mortality predictors differ according to reperfusion strategy in acute myocardial infarction patients?

Ismail Ghérissi [Orateur], Wiem Selmi, Fatma Ben Amor, Z Dridi, Meriem Khrouf, Walid Saieb, Samer Hamayel, Ayoub Ghrairi, Semi Bouraoui, Amine Hdiji, M Hassine, Abdennaim Hajlaoui, Fethi Betbout, Habib Gamra
Fattouma Bourguiba University Hospital, Cardiology, Monastir, Tunisia

Background: Up to date treatment of ST elevation myocardial infarction (STEMI) has been based on as early as possible reperfusion that can be achieved by either primary angioplasty (PAMI) or thrombolysis.

Predictors of mortality of these two strategies may not be similar. The aim of this analysis was to identify mortality predictors in STEMI patients (pts) according to the reperfusion strategy.

Methods: A total of 1353 pts admitted for acute myocardial infarction (AMI) between January 1995 and April 2011 were included in our MIRAMI (MonastIR Acute Myocardial Infarction) registry. Reperfusion therapy was given to 788 (58.2%) pts. Because of lacking data, 117 were excluded, the remaining 671 pts were considered for this analysis: 372 pts received thrombolytics and 299 underwent primary angioplasty. In each group, an univariate then a multivariate logistic regression analysis was used to evaluate the impact on mortality of the following factors: age, sex, hypertension, diabetes, smoking, infarct location, Killip class, time to treatment (TTT), hemoglobin and creatinin serum levels.

Results: Among the tested parameters, only four were identified to be independent predictors of mortality by multivariate analysis as shown below:

Conclusion: In our MIRAMI registry, regardless of the reperfusion strategy, mortality predictors were: time to treatment > 6 hours, heart failure and renal impairment. Hemoglobin blood level less than 12g/dl was an independent predictor only in the primary angioplasty group.

Table – Results

	TTT>6 hours	Killip class ≥2	Creatinin >150µmol/l	Hemoglobin <12g/dl
Thrombolysis group	p=0.03 OR=3.28	p=0.0001 OR:2.9 to 17.17	p=0.014 OR=4.39	NS
PAMI group	p=0.036 OR=2.8	p<0.001 OR: 4.41 to 19.21	p=0.006 OR=4.93	p=0.003 OR=3.96

029

Cardiovascular risk in clopidogrel-treated patients according to cytochrome P450 2C19*2 loss-of-function allele and proton pump inhibitor coadministration

Leila Abid [Orateur] (1), Lobna Laroussi (1), Nouha Abdelmoula (2), Najla Kharrat (3), Rania Abdelhédi (3), Mourad Hentati (4), Samir Kammoun (5)
(1) CHU Hédi Chaker, Cardiologie, Sfax, Tunisie – (2) Histology Laboratory, FMS, Sfax, Tunisia – (3) CBS Center , Sfax, Tunisia – (4) CHU Hédi Chaker, Sfax, Tunisie – (5) CHU Hédi Chaker, Cardiologie, Sfax, Tunisia

Background. Clopidogrel is an antiplatelet drug that requires bioactivation to its active metabolite to demonstrate its antiplatelet effect. Formation of the active metabolite involves multiple cytochrome P450 enzymes, with CYP2C19 playing an important role. Clopidogrel is often co-administered with proton pump inhibitors (PPIs) to decrease gastro intestinal-tract bleeding.

The aim of this study was to assess the association between the loss-of-function cytochrome P450 2C19 (CYP2C19)*2 variant, the use of proton pump inhibitors (PPIs) and ischemic outcomes (major adverse cardiovascular events [MACE]) in patients treated with clopidogrel.

Methods. Between May 2009, and september 2010, 100 patients who underwent a percutaneous coronary intervention (PCI) and were exposed to clopidogrel treatment for at least one month, were enrolled in our study. They underwent *CYP2C19*2* determination. The primary endpoint was a composite of death, myocardial infarction, and urgent coronary revascularisation occurring during exposure to clopidogrel.

Results. 75% of our patients were on PPIs in the hospital phase distributed equally between the two groups non mutated and mutated (74% vs 78.3% p=0.68). The use of PPIs in the hospital phase did not cause a significant increase in the occurrence of MACE (p=0.23).

In the group of patients on PPIs, no statistically significant difference was observed regarding the occurrence of intra hospital MACE according to genetic profile (5, 3% in the non mutated group versus 5,6% in the mutated group).

Conclusion. The present study provides further supportive evidence to indicate that PPIs can be used safely in patients taking clopidogrel. Although omeprazole might attenuate some of the in vitro antiplatelet effects of clopidogrel, convincing evidence is currently lacking to indicate that this combination places patients at increased risk of harm.

030

Angiotensinogen gene polymorphism associates with acute myocardial infarction risk in Tunisian patients

Soumira Mehri, Sonia Hammami [Orateur] , Nadia Koubaa, Amel Nkbi, Mohamed Hammami
Faculté de Médecine Monastir, Nutrition Humaine et désordres métaboliques, Monastir, Tunisie

Introduction. To explore the role of genetic variant of angiotensinogen (AGT) M235T as an independent risk factor for acute myocardial infarction (AMI) and to investigate the possible association with the severity of coronary artery disease (CAD), estimated on the basis of the number of coronary stenoses and critical arterial occlusions.

Patients and methods. 123 AMI patients compared to 144 healthy controls. AGT genotypes were determined by PCR method.

Results. A significant association was found between AGT M235T polymorphism and AMI (p=0.021). By logistic regression, the TT genotype appeared to confer 1.9-fold increased risk for AMI in both the univariate and the multivariate model. The frequencies of TT genotype and T allele increased with the number of stenoses in coronary vessels. Moreover, the TT genotype and the T allele were more frequent in the subgroup of patients with stenoses in at least four coronary vessels than in other patients including subjects with one to three vessel disease. Furthermore, the TT genotype and the T allele were significantly more frequent in patients with critical arterial occlusions (>90%) than in subjects without critical stenoses.

Conclusions. The AGT M235T polymorphism associates with AMI risk and influences CAD severity.