

Topic 01 – Coronary heart disease

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001

Risk of cardiovascular and bleeding events and mortality in patients with chronic kidney disease and acute coronary syndrome undergoing percutaneous coronary intervention: the APTOR-II study

Jean Ferrières [Orateur] (1), Guy Berkenboom (2), Zdenek Coufal (3), Stefan James (4), Attila Mohácsi (5), Gregory Pavlides (6), Kirsi Norrbacka (7), Magali Sartral (8), Marie-Ange Paget (8), Molly Tomlin (9), Uwe Zeymer (10) (1) *CHU Rangueil, Cardiologie B, Toulouse, France* – (2) *ULB Erasme University Hospital, Department of Cardiology, Brussels, Belgium* – (3) *Batova Krajska Nemocnice Zlin, Department of Cardiology, Zlin, République Tchèque* – (4) *Uppsala University Hospital, Dept. of Cardiology and Uppsala Clinical Research Center, Uppsala, Suède* – (5) *Gottsegen Institute of Hungarian Cardiology, Budapest, Hungaria* – (6) *Onassis Cardiac Surgery Center, Kallithea, Grèce* – (7) *Lilly Research Laboratories, Eli Lilly and Company, Vantaa, Finlande* – (8) *Lilly Research Laboratories, Eli Lilly and Company, Paris, France* – (9) *Lilly Research Laboratories, Eli Lilly and Company, Indianapolis, United-States* – (10) *Klinikum Ludwigshafen, Ludwigshafen, Allemagne*

Purpose: Chronic kidney disease (CKD) is associated with poor outcomes in patients with acute coronary syndrome (ACS) undergoing percutaneous coronary intervention (PCI).

Methods: ACS patients undergoing PCI from 2008-2009 were enrolled in a prospective, observational registry of 11 European countries, APTOR-II. Patients were grouped by their calculated creatinine clearance (CrCl), estimated by the Cockcroft Gault equation. 2,273 patients (75%) had no or mild renal impairment (CrCl ≥ 60 mL/min/1.73m²), 611 patients (20%) had moderate to severe renal impairment (<60 mL/min/1.73m²), and 158 patients (5%) had missing information. For patients with moderate to severe renal impairment, 90% had a CrCl ≥ 30 -<60, 7% had a CrCl ≥ 15 -<30 and 3% had a CrCl <15. Kaplan-Meier estimates at 12 months post-PCI were calculated for CV event, such as stent thrombosis, bleeding and mortality.

Results: 12 months post-PCI, patients with CrCl <60 mL/min/1.73m² were at greater risk for a CV event, bleeding, and mortality compared to patients with CrCl ≥ 60 mL/min/1.73m².

Table – Kaplan-Meier (KM) estimate at 12 months following PCI

Event	CrCl ≥ 60 mL/min/1.73m ² (N=1953)		CrCl <60 mL/min/1.73m ² (N=754)	
	n at risk at 12 months	KM% (95% CI)	n at risk at 12 months	KM% (95% CI)
CV event*	1543	14.9 (13.4, 16.3)	364	21.8 (18.4, 25.1)
Stent thrombosis	1791	1.6 (1.1, 2.1)	448	1.9 (0.8, 3.0)
Bleeding	1781	2.1 (1.5, 2.6)	435	4.7 (3.0, 6.4)
All-cause mortality	1820	1.4 (0.9, 1.9)	454	6.3 (4.4, 8.3)

*CV event includes unstable angina, non-ST-elevation myocardial infarction (NSTEMI), STEMI, urgent target vessel revascularization, acute heart failure, stent thrombosis, ischemic and hemorrhagic strokes, and CV death

Conclusions: At 12 months post-PCI, ACS patients with CKD tended to have greater rates of ischemic and bleeding events and higher mortality compared to patients with no or mild renal impairment. Caution has to be exerted with CKD patients when deciding on invasive and antiplatelet treatments.

002

Impact of diverting general practitioner's after-hours calls to emergency medical dispatch centers on time delays and acute revascularization procedures for patients with ST-segment-elevation myocardia

François Dumont [Orateur] (1), Luc Lorgis (2), Jean Michel Yeguiayan (3), Claude Touzery (2), Marianne Zeller (4), Aurélie Avondo (3), Gilles Dentan (5), Jean Noel Beis (1), Jean-Claude Beer (2), Joelle Hamblin (1), Yves Cottin (2), Marc Freysz (3), Gilles Morel (1) (1) *Université de Bourgogne, Département de Médecine Générale, Dijon, France* – (2) *CHU Bocage, Cardiologie, Dijon, France* – (3) *CHU, SAMU, Dijon, France* – (4) *IFR 100 santé-STIC, LPPCE, Dijon, France* – (5) *Clinique de Fontaine, Cardiologie, Fontaine Les Dijon, France*

Objective: This study aimed to analyze the impact of diverting after hours calls to an emergency medical dispatch centers (EMDC) on time delays and revascularization procedures for patients with ST-segment Elevation Myocardial Infarction (STEMI) in a French region.

Design: Prospective observational study.

Setting: All intensive care unit from one French region.

Participants: 3376 consecutive patients admitted for an acute STEMI were included, from the RICO survey (a French regional survey for acute MI). Patients were classified into two groups: before redirecting to EMDC (2001-2004) and after redirecting to EMDC (2005-2008).

Main outcome measures: Thirty-days and one-year cardiovascular death.

Results: Among the 3376 patients included in the study, 1781(53%) were admitted before redirecting to EMDC and 1595 (47%) after redirecting to EMDC. Access to health care facilities was similar for the two groups. The rates of off-hours calls remained stable over time. The median delay from first medical intervention to hospital admission decreased from 75 (40-150) to 60 (34-110) minutes and the delay from symptom onset to hospital admission from 170 (90-330) to 160 (90-300) minutes (p<0.001). At the same time, the off-hours median interval from door-to-balloon dropped significantly of 54 minutes (from 152 (60-333) to 98 (45-240) minutes (p=0.018)). Multivariate analyses showed that implementing the EMDC significantly reduced preadmission delays even when adjusting for potential confounders. Moreover, implementing EMDC was associated with a dramatical reduction of 30 days mortality by 60% in patients admitted during off hours and undergoing primary PCI (10% vs 4%, p=0.012).

Conclusion: In a real world setting, improving the quality of prehospital organization was effective not only on reducing delays but also on improving access to revascularization. Although our results showed the beneficial impact of redirecting calls on management of STEMI, it also underlines the need for further improvements in pre-hospital transportation.

003

Pericardial effusion in acute myocardial infarction: new insights from the French regional RICO survey

Jean-Claude Beer [Orateur] (1), Luc Lorgis (1), Laurent Mock (2), Carole Richard (1), Luc Janin-Manificat (3), Philippe Buffet (1), Florence Bichat (1), Juliane Berchoud (1), Yves Cottin (1), Marianne Zeller (4) (1) *CHU Bocage, Cardiologie, Dijon, France* – (2) *Clinique de Fontaine, Cardiologie, Fontaine Les Dijon, France* – (3) *Centre Hospitalier, Cardiologie, Beaune, France* – (4) *IFR 100 santé-STIC, LPPCE, Dijon, France*

Aim: Early post-acute myocardial infarction pericardial effusion are the major pericardial complications. We aimed to analyse the frequency, treatments, characteristics and prognostic significance of pericardial effusion (PE) following acute myocardial infarction.

Methods: From the French regional RICO survey database, all the patients hospitalized between January 1st 2001 and december 31st 2009 for an acute myocardial infarction in Côte d'Or with echocardiographic examination (<48H) were included in the study. Data from patients with and without PE were compared at baseline and at follow-up.

Results: 8680 patients were included in the study, of whom 135 (1.5%) were diagnosed with PE. Patients with and without PE had similar risk factors,

including age, sex and time delays to admission. Interestingly, dyslipidemia and history of MI was less frequent in PE group. Plasma CRP levels on admission were markedly higher in PE patients. Prior chronic treatments were less frequent in PE group, in particular for aspirin (11 vs 19%, $p=0.027$), ACE inhibitor (10 vs 18%, $p=0.014$) and statin (15 vs 23%, $p=0.054$). Acute treatments were similar, except for BetaBlocker that were more used in patients without PE. Patients with PE were more likely to suffer from STEMI and altered LVEF. Hospital complications such as death, or heart failure (12 vs 7%, $p=0.016$, 47 vs 28%, $p=0.001$), and mechanical complications including atrial fibrillation, wall rupture, apical thrombus and mitral regurgitation (respectively, 20 vs 9%, $p<0.001$, 7 vs 0.5%, $p<0.01$, 8 vs 0.7%, $p<0.01$, and 8 vs 3%, $p=0.03$) were more frequent in PE group.

Conclusions: Our large study showed that, although PE is uncommon in the contemporary era of acute MI, it is still associated with worse short term prognosis, characterized by high rate of mechanical complications. Our works also suggest a preventive effect of some CV drugs against the development of PE following acute MI.

004

Contrast induced nephropathy after primary PCI for STEMI: usefulness of a new definition

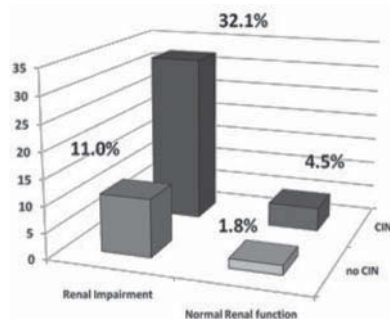
Johanne Silvain [Orateur], Vincent Spagnoli, Olivier Barthelemy, Anne Bellemain-Appaix, Farzin Beygui, Nicolas Vignolles, Guillaume Cayla, Jean-Philippe Collet, Gilles Montalescot

AP-HP, CHU Pitié-Salpêtrière, Cardiologie, Paris, France

Objectives: The aim of this study was to assess the prevalence and impact on outcome of CIN occurring after primary PCI (pPCI) for STEMI, in addition to the information provided by the measure of renal function. **METHODS:** In 924 consecutive STEMI patients undergoing pPCI, we measured serum creatinine concentration (CrC) and calculated creatinine clearance (CrCl) at admission (in the cath-lab) and each day during hospitalization. Renal impairment was defined as a CrCl <60 ml/min. CIN was defined #1 – by an increase of 25% of Cr C between the baseline and the peak (classic definition) and, #2 – by a decrease of 25% of CrCl according to the Cockcroft-Gault Formula (new definition).

Results: Renal impairment was found in 26.1% at admission and in 29.6% of patients after the pPCI and had a major impact on in-hospital mortality (13.8% vs. 2.25% in patients without renal dysfunction, OR 7.1; $p<0.0001$). The relation was even stronger after pPCI (15.6% vs. 1.7%, OR 8.8; $p<0.0001$). Using definition #1, CIN occurred in 17.2% (159) of patients and was associated with a three-fold increase in mortality when compared with patients without CIN (11.6% vs. 3.9%, OR 3.2, $p=0.0036$). The rate of CIN was 11.3% (104) with definition #2 and associated with a four-fold increase in mortality (15.3% vs. 4.0%, OR 4.3, $p=0.0005$). The combined effect on in-hospital mortality of baseline renal impairment and CIN after pPCI is shown on figure 1. The mean volume of contrast media was similar in patients developing CIN or not (218 ± 44 vs. 217 ± 50 ; $p=0.8$ definition #1; 213 ± 39 vs. 218 ± 49 ; $p=0.5$ definition #2) and did not relate to survival either (219 ± 9 ml vs. 216 ± 2 ml; $p=0.7$).

Conclusions: In STEMI patients CIN is a major factor of in-hospital death when it occurs in patients with basal renal impairment and seem independent to the amount of contrast media. A new definition of CIN based on CrCl seems more sensitive to predict mortality.



Mortality according to Renal Impairment and CIN

005

Impact of functional decline on outcome in elderly patients with acute coronary syndromes

Sylvestre Maréchaux [Orateur] (1), Vincent Decourcelle (2), Claire Pincon (3), Stéphanie Barrailler (4), Thomas Guidez (4), Sophie Braun (4), Nadia Bouabdalloui (4), Jean-Jacques Bauchart (4), Jean-Luc Auffray (4), Philippe Asseman (4), Eric Van Belle (4), Thierry H Le Jemtel (5), Pierre-Vladimir Ennezat (6)

(1) GHICL, faculté libre de médecine de Lille, Lomme, France – (2) CH Armentières, Armentières, France – (3) Département de biomathématiques, Lille, France – (4) CHRU Lille, Lille, France – (5) Tulane Medical School of Medicine, New Orleans, Etats-Unis – (6) CHRU Lille, Cardiologie, Lille, France

Introduction: The present study was designed to identify the mid and long term impact of limitations of daily activities (functional decline) on outcome in a cohort of elderly ACS patients.

Methods: Clinical data including the Global Registry of Acute Coronary Events (GRACE) score and assessment of functional status using Katz scale was prospectively collected in a cohort of 272 patients ≥ 70 years old admitted for an ACS. All cause mortality was assessed at 6-month and in alive patients after the initial 6 months of follow-up.

Results: Mean age was 78 ± 6 years (men 58%). Functional decline was diagnosed in 28% of the cohort. At 6-month follow-up 38 patients died and during a median follow up of 611 [1-1320] days after 6-month post ACS, 29 patients died. Functional decline was associated with both 6-month and long-term outcome (HR=3.629 [1.914-6.881], $p<0.0001$ and HR=2.69 (1.28-5.64), $p=0.009$ respectively). Functional decline remained associated with both 6 months and long-term outcome in multivariate analysis. Functional decline was systematically selected in the most predictive multivariate models for the prediction of 6-month and long-term mortality in term of global model fit, calibration and discrimination. While the multivariate model including the GRACE score and functional decline had a good predictive value for the prediction of 6-months mortality, the combination of functional decline to biological data (low estimated Glomerular Filtration Rate and haemoglobin) had a better predictive value for the prediction of long-term mortality than a model combining functional decline to the GRACE score.

Conclusions: The present study provides strong evidence that functional decline represents a short – and long-term prognosticator in elderly ACS patients. Functional decline should be considered to achieve coordinated care and thereby improve outcome in elderly.

006

Predictors of success of thrombolysis using streptokinase in STEMI patients: results from the MIRAMI registry

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

Background: Despite the superiority of primary angioplasty in the management of ST elevation myocardial infarction (STEMI), thrombolysis remains more frequently used worldwide particularly in developing countries.

The aim of this analysis was to identify predictors of thrombolytic therapy success in STEMI patients.

Methods: Among 1353 patients included in our MIRAMI (Monastir Acute Myocardial Infarction) registry between January 1995 and April 2011, 436 patients received thrombolysis. Streptokinase was the only lytic agent used. Multivariate logistic regression was used to determine predictors of thrombolysis success.

Results: Thrombolysis success, defined as chest pain relief below 5 in a scale from 1 to 10 and ST elevation resolution over 50% from baseline, was obtained in 306 patients (70%). Time to treatment less than 3 hours ($p=0.001$; OR= 2.13), smoking ($p=0.001$, OR=2.1), and inferior location ($p=0.009$, OR=1.83) were identified as independent predictors of thrombolysis success. Inversely, severe heart failure (Killip III and IV classes) were found to be pre-