Prognostic Importance of Body Mass Index in patients Undergoing Primary Coronary Angioplasty for Acute Myocardial Infarction

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Background: Recent studies have shown a lower mortality in obese patients (pts) with coronary artery disease as well as in specific group of pts after elective percutaneous coronary intervention (PCI). There is paucity of data regarding outcomes of obese pts with acute myocardial infarction (AMI). Thus, our study aimed at evaluating clinical outcomes of obese pts treated by primary PCI for STEMI.

Methods and results: we used our clinical database consisting of all patients treated by primary PCI (≤ 12 hours) for AMI between 1/2001 and 7/2007 excluding pts with cardiogenic shock. The clinical and angiographic results of pts was determined according to body mass index (BMI) as follow: normal BMI (< 25); overweight (BMI=25-29.9) and obesity (BMI ≥ 30).

Results: are shown in **Table**:

	BMI<25 (N=310)	**BMI=25-29.9 (N=380)**	**BMI ≥30 (N=199)**	**P value**
Age	61±13	60± 13	58±10	0.007
Male	79%	85%	83%	0.1
Diabetes mellitus	20%	21%	36%	0.001
Hyperlipidemia	37%	48%	48%	0.005
Hypertension	37%	45%	59%	0.0001
Killip Class≥2	15%	15%	18%	NS
LVEF≤40%	47%	41%	37%	0.05
Ref. diameter (mm)	3.0±0.5	3.0±0.5	3.2±0.5	0.002
Pre-TIMI grade 0-1	61%	62%	68%	NS
Post TIMI 3	97%	94%	96%	NS
1-month / 6-months				
Death (%)	3.9/5.7	2.4/3.9	2.0/4.2	NS
Re-MI (%)	2.6/4.7	2.6/5.5	2.0/4.2	NS
Stent Thrombosis (%)	1.6/2.7	1.8/3.3	1.5/2.6	NS
TVR (%)	0/8.3	0/9.1	0/6.8	NS
CABG (%)	1.9/4.3	3.4//4.7	1.5%/5.3	NS
MACE (%)	7.4/16	8.4/16	6.5/15	NS

Conclusion: 1) Despite increased incidence of diabetes mellitus, hypertension and hyperlipidemia and worse LV function at STEMI presentation, obese patients have the same mortality and MACE outcomes for compared to counterparts with normal BMI, 2) These findings could be explained in part by increased vessel diameter and/or yet undefined cardio-protective BMI-related mechanisms.

A Method for Reducing Amount of Contrast in Patients at Risk for Contrast Nephropathy

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Background: Hydration, reno-protective medications and low osmolality contrast are used to reduce the incidence of contrast nephropathy (CN).
We describe a method that permits coronary angiography and PCI with minimal amount of contrast .
Methods: The essence of our method is using high rate (e.g. 6 ml/sec) ACIST injections which allows very small volume (<2 ml) to opacify the coronaries. Reviewing injections may need frame by frame rather than loop inspection. We meticulously adhered to the following 10 rules: 1. Plan the procedure to use the smallest amount of contrast (e.g. review previous catheterizations). 2. Avoid contrast for catheter intubation at the coronary ostium. 3. Do not use side holes catheters. 4. Use "friendly" catheters to enter the ostium with minimal manipulation. 5. Use ACIST for volume controlled injections and avoid manual injections. 6. Train your finger to inject very small test injections. 7. Avoid reflex administration of contrast. 8. After each injection sum on the total amount of contrast used. 9. Avoid contrast if possible while introducing guidewires. 10. Use markers (calcification, previous stent) for road mapping and positioning of balloon/stent.
Results: Ten patients at high risk for CN were catheterized using this method. The average age was 66.5±9.5 years. Seventy percent had DM. The average amount of contrast was 14.06±4.6 ml for diagnostic coronary angiography and 15.7±6.6 ml for angioplasty. No angiographic effect was noted at the site of coronary injection. Serum creatinine was 2.26±0.66 mg% before and 2.15±0.58mg% (1 and 3-5 days) after the procedure.
Conclusions: Diagnostic coronary angiography and PCI can be completed with use of tiny amount of contrast. This method avoids contrast nephropathy even in patients at high risk.

Metabolic Syndrome is Associated with Worse 6-month Outcomes of Patients Undergoing Primary Percutaneous Coronary Intervention for Acute Myocardial Infarction

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Background: Metabolic syndrome is associated with increased risk of cardiovascular events. Recent studies have shown that it is highly prevalent among young patients with acute myocardial infarction (AMI), and it is not associated with increased risk of restenosis in patients undergoing elective percutaneuos coronary intervention (PCI). However, only limited data are available on the effect of metabolic syndrome on long-term outcomes of unselected patients undergoing primary PCI for AMI.

Method and Results: We used our database of all pts (n=1336) undergoing primary PCI for AMI between 1/2001 and 7/2007, excluding those with cardiogenic shock and late arrivals (>12hrs from symptoms onset to 1st balloon inflation). Metabolic syndrome was defined according the WHO clinical criteria as: diabetes type-II or impaired fasting glucose (≥110mg/dL) plus any 2 of the following criteria: HTN (on medical treatment) or systolic BP≥140mmHg or diastolic BP≥90mmHg; Trig≥150mg/dL; HDL<35mg/dL in men or HDL<39mg/dL in women; BMI>30kg/m2. Patients (n=833) were allocated into 2 groups: 1st Group (n=674 pts) included those without metabolic syndrome and 2nd Group (n=159 pts) included those with metabolic syndrome. Patients' clinical and angiographic characteristics as well as 6-month outcomes are shown in **Table:**

	No Metabolic Syndrome	**Metabolic Syndrome**	P Value
N	674	159	
Age	60±13	61±11	0.6
Male (%)	83	75	**0.02**
Anterior AMI (%)	49	43	0.4
2-3 Vessel CAD (%)	54	68	**0.001**
Renal failure(GFR<60) (%)	12	20	**0.005**
CADILLAC score	4.3±3.6	4.1±3.4	0.6
Initial TIMI Flow 0-1 (%)	1.3	1.3	0.99
Anti GP 2B/3A (%)	78	76	0.8
Final TIMI Flow 3 (%)	96	96	0.7
No/Slow Reflow incl. transient (%)	5.6	7	0.6
Six Months			
Death (%)	4.4	6.9	0.3
Re-MI (%)	5.9	8.9	0.2
Stent thrombosis (%)	2.8	6.3	**0.03**
TLR / CABG (%)	8.2 / 4.3	11.3 / 6.9	0.1 / 0.2
MACE (%)	15.3	23.3	**0.007**

Conclusion: Metabolic syndrome in patients undergoing primary PCI for AMI was associated with increased risk of stent thrombosis, resulted in worse 6-momth outcomes.

Timing of Percutaneous Coronary Intervention of the Non-Culprit Artery in Patients with Multivessel Disease and Acute Myocardial Infarction

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Background: The role and timing of complete revascularization of non-infarct related artery [n-IRA] after STEMI is controversial

Objective: To compare n-IRA outcomes between different PCI timing strategies of n-IRA

Methods: We used our clinical Database consisting 145 consecutive patients with multi-vessel disease (≥70% stenosis of ≥2 coronary arteries) treated by primary PCI within 12 hours of chest pain for AMI. Patients with cardiogenic shock were excluded. Patients were subdivided in 3 groups: 1) patients undergoing PCI of the non-IRA during initial procedure 2) patients undergoing PCI of the non-IRA in hospitalization 3) patients undergoing PCI of the non-IRA during 6-months [operator's discretion: clinical, anatomic, or stress testing].

Results: The study included 145 patients with multivessel disease who underwent PCI of the non-IRA during the first 6 month. Clinical characteristic and 6 months are summarized:

	Group I (Initial) **N=38**	**Group II** (Hospitalization) **N=36**	**Group III** (within 6-moths) **N=71**	**P-value**
Age (years)	66±15	68±12	62±10	0.06
Males (%)	76	81	82	0.8
GFR (<60 mL/min/1.73 m^2) (%)	26	22	14	0.6
Killip class >1 (%)	27	29	16	0.2
Anterior MI (%)	55	33	45	0.3
Diabetes (%)	34	48	37	0.4
No reflow-culprit (%)	5	15	7	0.3
Successful PCI-culprit (%)$^{\tau}$	97	91	92	0.7
Ejection fraction <40% (%)	55	43	49	0.6
CADILAC risk score	6.1±3.9	6.4±4	5.5±3.5	0.4
6-monhs outcome				
Death (%)	10.5	14	3	0.08
Re-AMI (%)	10.5	11	13	0.9

$^{\tau}$ TIMI 3 and residual stenosis <30%,

Conclusions: Our preliminary data suggest that deferring PCI of n-IRA in AMI patients with multivessel is preferred in suitable cases based on clinical and anatomic consideration.

The Effect of Baseline Platelet Count on Outcomes in Patients with Acute Myocardial Infarction Undergoing Primary PCI

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Background: Platelets may impact the thrombosis outcomes in the acute myocardial infarction (AMI). There are few data regarding the impact of platelet count (PC) on clinical outcomes of patients undergoing emergent PCI during STEMI. This study aimed at evaluating the impact of baseline (PC) on clinical outcomes among patients treated by primary PCI for AMI.

Methods and Results: we used our data consisting of all patients treated by primary PCI (≤ 12 hours) for AMI between excluding pts with cardiogenic shock. The clinical results of treated pts studied, distinguished according to quartiles of baseline PC are shown in the accompanied **Table**:

Platelet Count 10^9	**<210 (N=232)**	**≥210-<246 (N=232)**	**≥246-<298 (N=233)**	**PC≥298 (N=234)**	**P**
Age (yes)	61±12	62± 13	59±13	60±12	0.1
Male	87%	82%	83%	77%	0.04
Diabetes mellitus	20%	28%	28%	25%	0.2
Hyperlipidemia	49%	53%	45%	43%	0.2
Hypertension	45%	41%	48%	49%	0.3
MV disease	59%	60%	58%	55%	0.9
Killip Class>1	13%	16%	16%	19	0.7
Anti GP 2B/3A	79%	77%	77%	75%	0.8
6-months events					
Death	3.2%	5.8%	5.8. %	7.9%	0.1
Re-MI	6.3%	6.7%	3.5%	7.9%	0.8
Stent Thrombosis	2.7%	2.2%	2.2%	6.6%	*0.04*
TVR	10.9%	8.5%	6.6%	13.6%	*0.07*
CABG	6.3%	6.3%	3.1%	3.5%	0.2
MACE	18.6%	17.9%	15.9%	21%	0.5

Conclusion: Patients with higher baseline PC who were treated on emergent basis using primary PCI for STEMI had higher 6 months rates of stent thrombosis and also tended to have higher TVR. It remains to be determined the exact platelet-derived mechanism which may be responsible for this observed phenomenon.

Human Plasma Corin Level as a Predictor of Major Cardiovascular Events Post PCI

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Background: Corin is a Type II transmembrane protease responsible for the cleavage of Pro-ANP to ANP and Pro-BNP to BNP.
ANP and BNP have vasodilatory and antiproliferative functions , and may confer protective effect against atherosclerosis.
In a previous study we found that plasma corin level is significantly higher in atherosclerotic patients compared to healthy volunteers (Abstract 3741:Human serum corin levels in healthy and atherosclerosis .Circulation 2007;116:II_850-II _851).
The assay of plasma corin level in the human was developed in our institution.

Hypothesis: Plasma corin level measured pre-PCI can predict major adverse cardiovascular events in long term follow up .

Methods and results: 98 atherosclerotic patients in whom plasma corin levels was measured pre-PCI were followed between two to three years for MACE .Forty six patients suffered from MACE (mortality ,re-infarction ,angina pectoris ,recurrent revascularization , CVA/TIA). Plasma corin level was significantly lower in the MACE group compared to the non-MACE group (729 pg/ml ,Std error 39 vs 849 pg/ml ,Std error 45 ,P=0.05 by unpaired t test). By multivariate analysis corin was an independent predictor of MACE

Conclusion: Plasma corin level can predict long term MACE in coronary artery disease patients post-PCI.