



TURIN, 20TH—21ST NOVEMBER 2008

GREAT INNOVATIONS IN CARDIOLOGY

4TH JOINT MEETING WITH MAYO CLINIC

4TH TURIN CARDIOVASCULAR NURSING CONVENTION



ABSTRACT SESSION (PART II)

Chairmen

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RENAL FAILURE AFTER BALLOON ANGIOPLASTY IN HIGH RISK PATIENTS: OUR EXPERIENCE



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Contrast Induced Nephropathy (CIN)

Acute reduction in renal function within 72 hours after the injection of radiocontrast agents:

- sCr increase of 25% above baseline
- sCr increase of at least 0,5 mg/dl

3^o reason of in-hospital acquired renal insufficiency



Contrast-induced Nephropathy In-hospital Mortality

% In-hospital death



Profound increase in in-hospital mortality in patients developing acute renal failure (ARF), particularly in diabetic patients



OBJECTIVES

1. To estimate **CIN incidence** in our population after adequate preventive treatment
2. To recognize patients at **high risk for CIN**
3. To estimate **prognosis** in terms of re-hospitalization, morbidity and mortality



METHODS

400 CONSECUTIVE PATIENTS

who underwent a percutaneous coronary intervention between January and June 2007



Renal function estimation

Serum Creatinine concentration ($sCr \geq 1,5$ mg/dl)

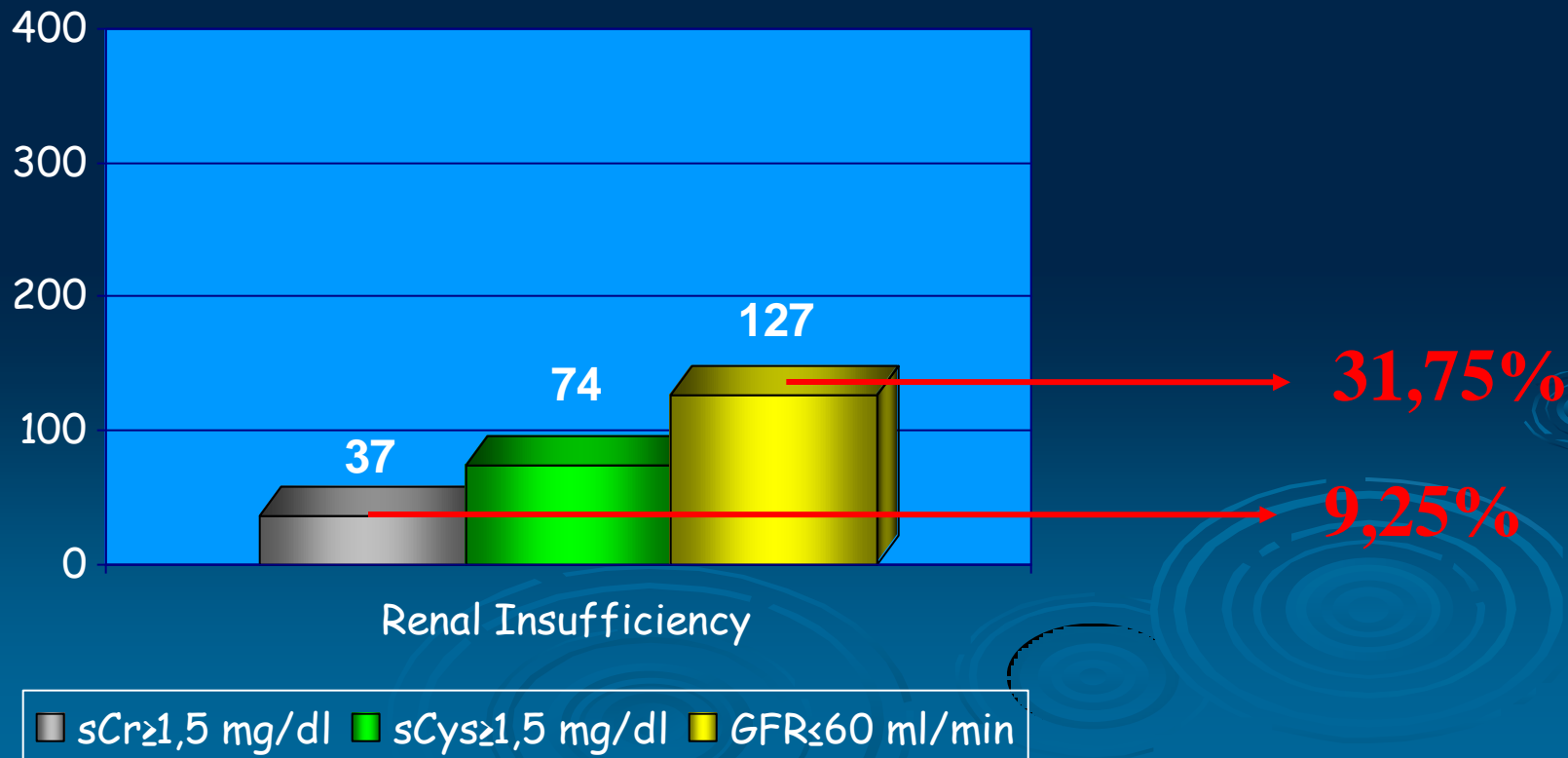
Serum Cystatin concentration ($sCys \geq 1,5$ mg/dl)

Glomerular Filtration Rate ($GFR \leq 60$ ml/min)

37/400 (9,25%)

74/400 (18,5%)

127/400 (31,75%)





PROPHYLACTIC PROTOCOL

Creatinine < 1,5 mg/dl:

IV isotonic hydration
(12 hours consecutively at 20-80 ml/h)

Creatinine \geq 1,5 mg/dl:

Or high risk patients (clinical evaluation)

- Acetylcysteine 1200 mg
- Ascorbic Acid 3 gr
- Sodium Bicarbonate 1,4% 3 ml/Kg (bolus 1 hour before)



RESULTS

Population

291 men (72,7%)
109 women (27,3%)
Mean age 67,27 ± 10,18

Cardiovascular Risk Factors

Hypertension	315/400 (78%)
Hypercholesterolemia	269/400 (67%)
Diabetes mellitus	106/400 (26,5%)
Smoking	112/400 (28%)
2 or + risk factors	287/400 (71,7%)

Clinical History

AMI	98	(24,5%)
Unstable angina	191	(47,75%)
Instrumental ischemia	90	(22,5%)
Cardiac Decompensation	21	(5,25%)
Well-known CAD	215	(53,75%)
Previous AMI	113	(28,25%)

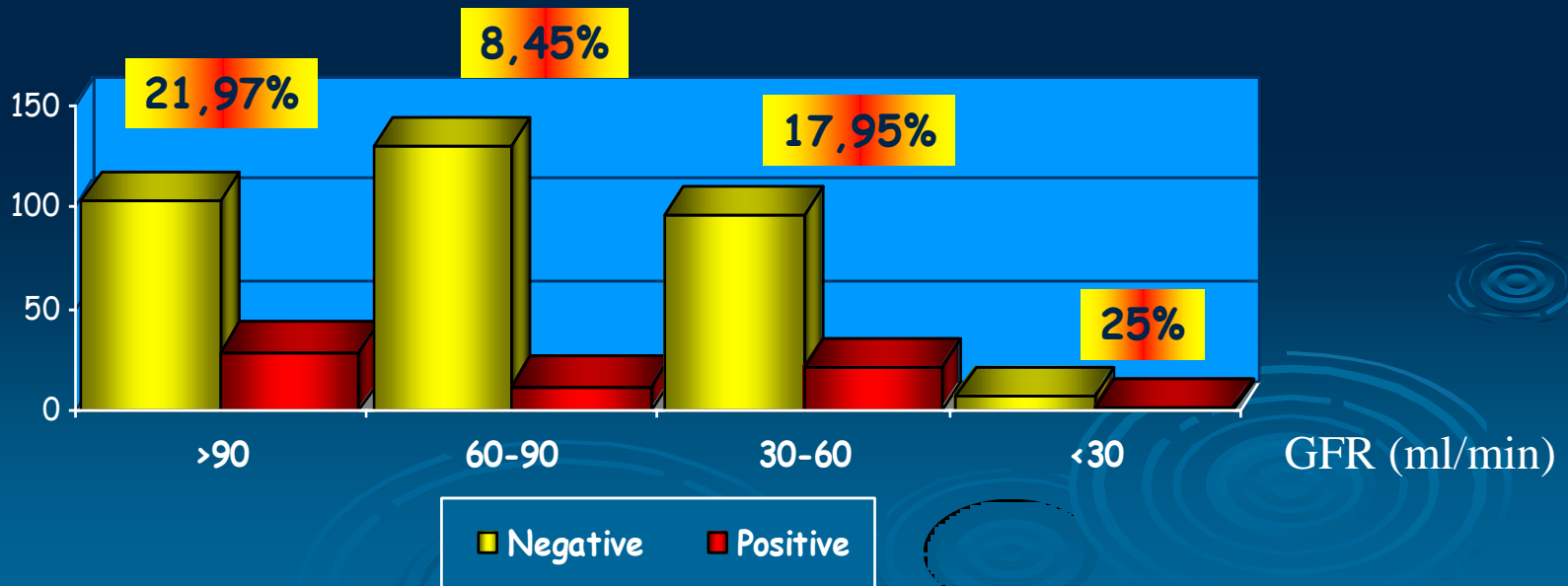
= 95%

sCr increase: **25%**

Incidence \longrightarrow **16%** (64/400)

GFR classes (ml/min)	N°	Incidence
≥ 90	29/132	21,97%
$=60 < 90$	12/143	8,45%
$=30 < 60$	21/117	17,95%
< 30	2/8	25%

N°

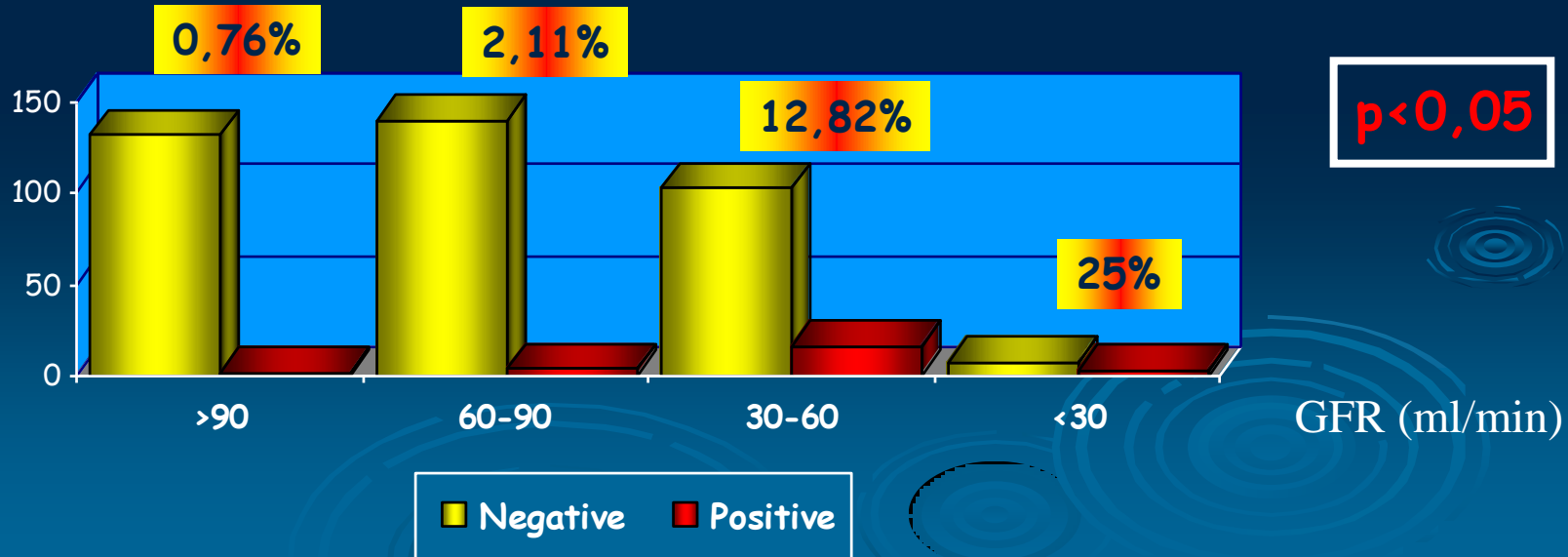


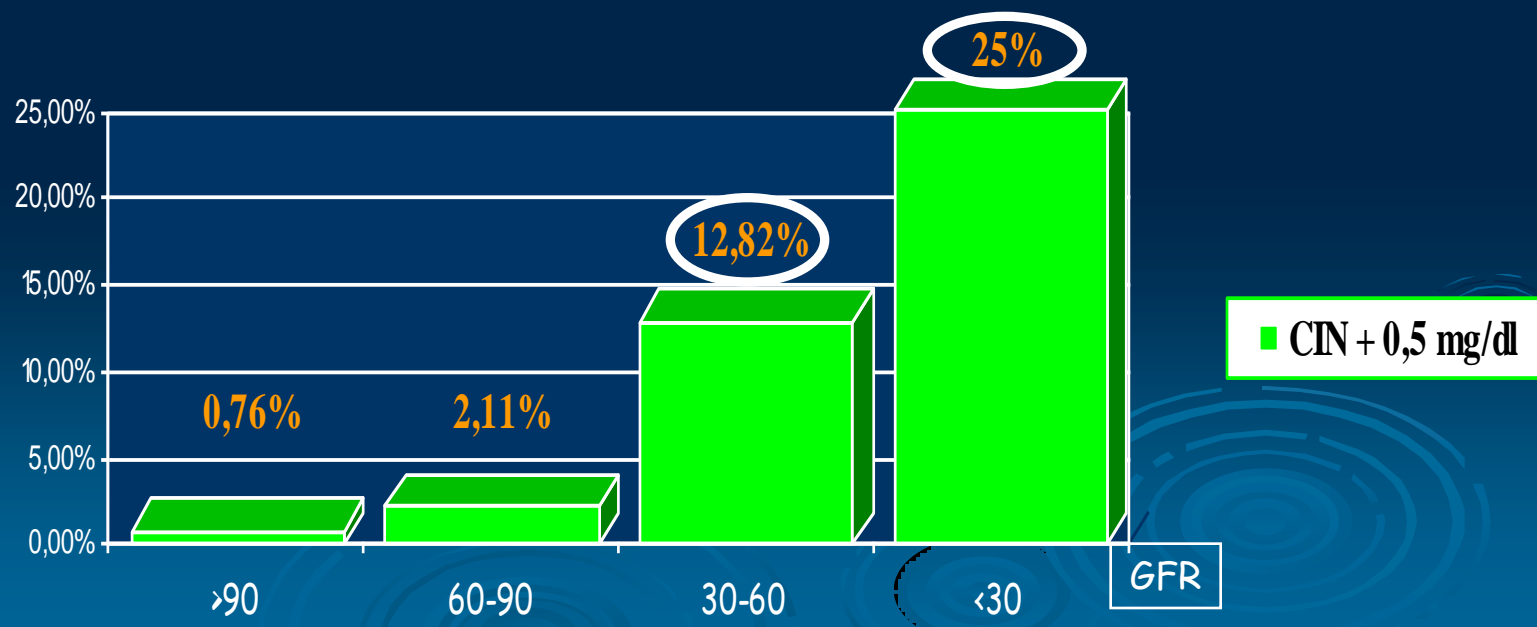
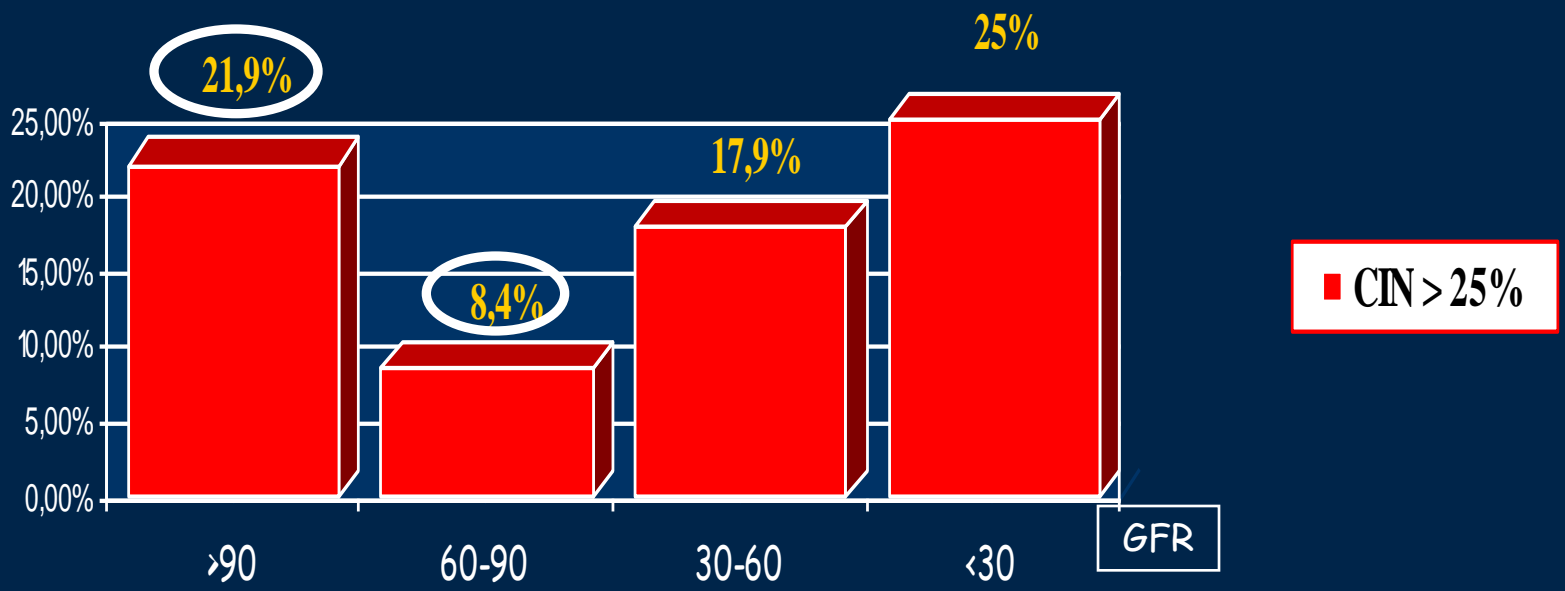
sCr increase: 0,5 mg/dl

Incidence → 5,25% (21/400)

GFR classes (ml/min)	N°	Incidence
≥90	1/132	0,76%
=60<90	3/143	2,11%
=30<60	15/117	12,82%
<30	2/8	25%

N°





Follow up at 6 months

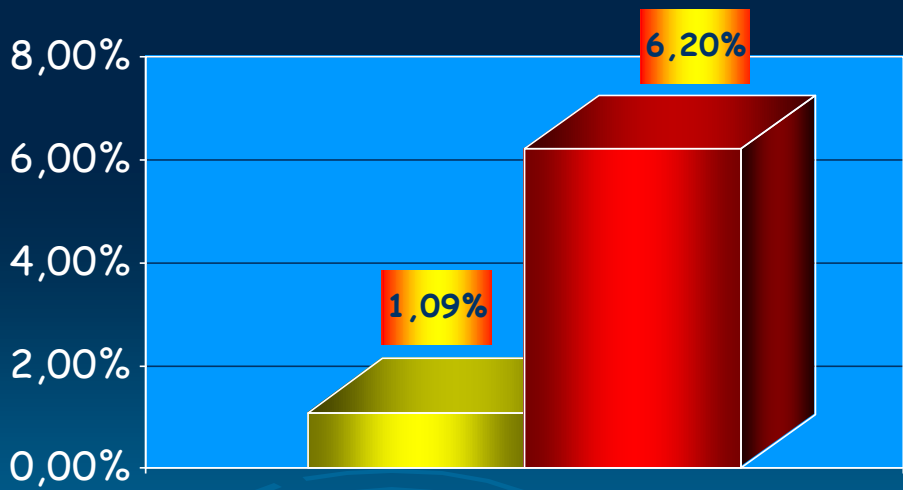
	CIN 0,5	CIN 25%	No CIN
Event free	52,4%	76,5%	79,2%
Renal Insufficiency evolution	23,8%	4,6%	2,9%
Re-Hospitalization	9,5%	6,8%	4,1%
Mortality	14,3%	4,5%	2%

$P=0,015$



GFR and Mortality

GFR ml/min	N°	medium sCr mg/dl	medium CysC mg/dl	CIN	Mortality
>60	273	0,88±0,6	1,0±0,69	3/273 (1,09%)	3/ 273 (1,09%)
≤60	127	1,44±0,97	1,71±1,03	18/127 (14,17%)	8/127 (6,2%)
Total	400	1,06±0,17	1.23±0,7	21/400 (5,25%)	11/400 (2,75%)



P=0,001

■ >60 ■ <60

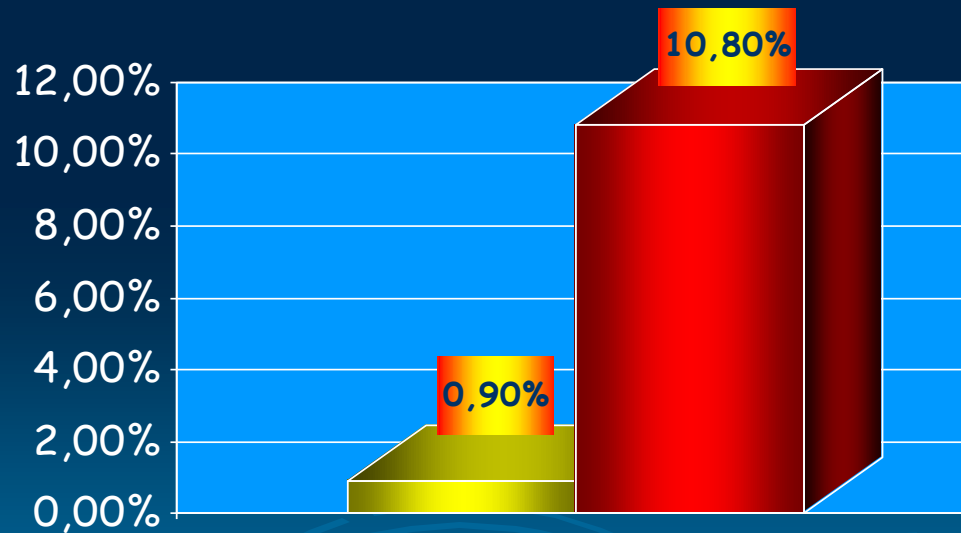
GFR ml/min



Cystatin and Mortality

Cystatin mg/dl	Mortality	%
< 1,5	3/326	0,9
1,5-2	2/52	3,8
>2	6/22	27,2

10,80%



P < 0,001

Mortality

■ < 1,5 ■ > 1,5

Cystatin mg/dl



CONCLUSIONS 1

1. CIN is frequent after coronary interventional procedures (5,25%) although the use of adequate hydration (Isotonic, Sodium bicarbonate) and oral antioxidant therapy (Acetylcysteine, Ascorbic acid).
2. Patients with $GFR < 60$ ml/min are at higher risk for CIN and require an adequate prophylactic treatment.



CONCLUSIONS 2

3. Patients who develop CIN are at higher risk for mortality at 6 months (incidence: 15%).
4. Cystatin is a good predictive factor for mortality at 6 months in patients affected by cardiovascular disease undergoing PCI, comparable to GFR evaluation, but more expensive and so less favourable in terms of cost-effectiveness.



***GRAZIE PER
L'ATTENZIONE***