

EFFECT OF ADMISSION ESTIMATED GLOMERULAR FILTRATION RATE ON PROGNOSIS IN ST ELEVATION MYOCARDIAL INFARCTION PATIENTS UNDERGOING PRIMARY PCI

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Introduction

Chronic Kidney disease (CKD) is the one of the predictors of complications which occur after percutaneous transcatheter angiography (PCI) and its presence predicts an increased risk for development of contrast induced nephropathy (CIN) and other contributes in other complications as, heart failure and death. CIN is currently defined as an increase in serum creatinine of more than 25% from baseline, and several studies of CKD patients have primary PCI showed increase the risk of CIN and death. Several studies have identified estimated GFR as a predictor for the prognosis of patients who undergoing primary PCI. Reduced GFR increases cardiovascular risk It may has direct cause on vascular event or death and it is associated with impaired intra-cardiac conduction and diastolic dysfunction deterioration. There is evidence that using eGFR at admission can help in predict the prognosis of the patient.

Aim of the Work

The aim of this study was to evaluate the impact of admission estimated GFR to expect the in-hospital and 12-month survival rate in patients of STEMI undergoing primary PCI.

Patients and Methods

The study was conducted The study included 302 patients retrospectively and 100 patients prospectively undergoing for primary percutaneous coronary intervention (PCI). All the patients were subjected to complete history taking, laboratory investigations including [Blood urea, serum creatinine, albumin / creatinine ratio (ACR), glomerular filtration rate (GFR)], standard resting 12 lead electrocardiography (ECG), transthoracic echocardiography and Primary PCI.

Results

Table 1: Distribution of the studied cases according to in-hospital outcomes (n = 402)

	No.	%
Death	10	2.5
Reinfection	6	1.5
Re-intervention	6	1.5
Stroke	9	2.2
AKI	19	4.7
Hemodialysis	4	1.0
Endpoint outcomes	39	9.7

Table 2: Distribution of the studied cases according to follow up

	No.	%
Short term follow up (n = 127)		
Normal	103	81.1
DHF and anginal pain	20	15.7
CKD	4	3.1
Death	4	3.1
Long term follow up (n = 126)		
Normal	117	92.9
DHF and anginal pain	5	4.0
HD	1	0.8
TIA	2	1.6
CKD	1	0.8
Death	2	1.6

Table 3: Relation between eGFR Pre PCI and history and laboratory test (n = 402)

	eGFR Pre PCI					
	<60 (n = 45)		≥60 (n = 357)		χ ²	FEp
	No.	%	No.	%		
DM						
No	25	55.56	249	69.75	3.709	0.054
Yes	20	44.44	108	30.25		
HTN						
No	25	55.56	248	69.47	3.549	0.06
Yes	20	44.44	109	30.53		
Smoking						
No	17	37.78	136	38.10	0.0017	0.967
Yes	28	62.22	221	61.90		
AF						
No	44	97.78	356	99.72	---	0.212
Yes	1	2.22	1	0.28		
Old CVS						
No	43	95.56	354	99.16	---	0.098
Yes	2	4.44	3	0.84		
Dyslipidemia						
No	45	100	350	98.04	---	1
Yes	0	0	7	1.96		
CKD						
No	43	95.56	354	99.16	---	0.098
Yes	2	4.44	3	0.84		
IHD						
No	37	82.22	309	86.55	0.625	0.429
Yes	8	17.78	48	13.45		
Thyroid disease						
No	45	100	349	97.76	---	0.606
Yes	0	0	8	2.24		
Autoimmune disease						
No	45	100	352	98.60	---	1
Yes	0	0	5	1.40		
RHD						
No	45	100	353	98.88	---	1
Yes	0	0	4	1.12		
PAD						
No	44	97.78	350	98.04	---	1
Yes	1	2.22	7	1.96		
Hemoglobin	(n = 45)		(n = 351)			
<11	6	13.33	39	11.11	0.195	0.658
≥11	39	86.67	312	88.89		
WBCs						
<10	9	20	135	38.46	5.875	0.015*
≥10	36	80	216	61.54		
Platelets						
<250	13	28.89	147	41.88	2.796	0.095
≥250	32	71.11	204	58.12		
Troponin						
Mean ± SD	29.42 ± 19.98		22.59 ± 18.78		t	0.023*
CKMB					t	
Mean ± SD	111.71 ± 101.51		116.19 ± 96.12		0.292	0.770
Na						
<140	41	91.11	291	82.91	---	0.198
≥140	4	8.89	60	17.09		
K						
<3.5	2	4.44	23	6.55	---	0.754
≥3.5	43	95.56	328	93.45		

Table 4: Relation between eGFR Pre PCI and sex, ECHO, number of stents, length of stents and ECG (n = 402)

	eGFR Pre PCI					
	<60 (n = 45)		≥60 (n = 357)		χ ²	FEp
	No.	%	No.	%		
Sex						
Male	34	75.56	295	82.63	1.347	0.246
Female	11	24.44	62	17.37		
ECHO						
Reduced	20	44.44	146	40.90	1.313	0.518
Mid-range	13	28.89	86	24.09		
Preserved EF >50% normal	12	26.67	125	35.01		
Number of stents	(n = 43)		(n = 349)			
1	36	83.72	318	90.34	9.391*	0.009*
2	6	13.95	31	8.81		
3	1	2.33	0	0		
Length of stents						
<20	2	4.44	30	8.40	---	0.558
≥20	43	95.56	327	91.60		
Anterior STEMI						
No	21	46.67	128	35.85	2.003	0.157
Yes	24	53.33	229	64.15		
Inferior STEMI						
No	25	55.56	242	67.79	2.681	0.102
Yes	20	44.44	115	32.21		
Posterior STEMI						
No	42	93.33	330	92.44	---	1
Yes	3	6.67	27	7.56		
Lateral STEMI	(n = 45)		(n = 355)			
No	41	91.11	313	88.17	---	0.804
Yes	4	8.89	42	11.83		
Right STEMI						
No	44	54.3	348	94.9	---	1
Yes	1	45.7	9	5.1		

Conclusion

eGFR, age and creatinine are valid to construct a prediction model for mortality in STEMI patients. Creatinine was an independent predictor of reinfection and reintervention.