

PROGNOSTIC SIGNIFICANCE OF GLYCATED HEMOGLOBIN LEVEL IN PATIENTS UNDERGOING PRIMARY PERCUTANEOUS CORONARY INTERVENTION

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Introduction

Diabetes is a common comorbidity among patients hospitalized with ACS, with a rising prevalence over the previous 10 years and a high mortality rate. Approximately 25% of patients with STEMI have a history of diabetes, whereas over 40% have undiagnosed T2DM or pre-diabetes. patients who have ASCVD, AF, or HF should be tested for diabetes, especially if they were admitted with an acute event. People who have stress hyperglycemia—defined as elevated blood sugar levels during hospitalization with a normal HbA1c—should also get post-discharge glucose assessment, to exclude prolonged abnormal glucose metabolism. Regardless of diabetes status, STEMI patients presented with hyperglycemia on admission have higher mortality rate than STEMI patients without hyperglycemia, there is a stronger correlation between blood glucose levels and mortality than between the prevalence of diabetes, Therefore, it is highly advised that all subjects have their blood glucose levels checked as soon as possible.

Aim of the work

The aim of this study is to assess the prognostic value of admission HbA1C level in patients undergoing primary PCI in Alexandria University Hospitals, on outcome of primary PCI and major adverse cardiovascular and cerebrovascular events.

Patients and Methods

The study was conducted on 150 STEMI patients who underwent PPCI, patients were divided into 2 groups according admission HbA1c level: group with HbA1c < 6.5 and group with HbA1c ≥ 6.5. All the patients were subjected to complete history taking, laboratory investigations including [CBC, Blood urea, serum creatinine, HbA1c, RBG, cardiac enzymes& lipid profile], standard resting 12 lead electrocardiography and transthoracic echocardiography.

All patients were followed-up for any intra-procedural complications including (No-reflow, Acute stent thrombosis, cardiac arrest, cardiac arrythmia), and for any in-hospital complications including (MACCE, decompensated heart failure, CIN, Vascular complications). patients followed -up for 1 year for any CV-outcomes including (MACCE, decompensated heart failure) via clinical visits or telephone.

Results

The mean age of study population was 57.05±10.88, 119 patients (79.3%) were males and 31patients (20.7%) were females. The HbA1c ≥6.5 group had a significantly higher incidence of acute stent thrombosis. There were no significant differences in other complications, including no-reflow and cardiac arrhythmia. The HbA1c ≥6.5 group had a significantly higher incidence of reduced LV systolic function and higher mean number of diseased coronaries.

Table (1): Comparison between the two studied groups according to in- hospital complications

	Total (n = 150)		HbA1c				χ^2	P
In- hospital complications			< 6.5 (n = 100)		$\geq$ 6.5 (n = 50)			
	No.	%	No.	%	No.	%		
Overall in- hospital complications								
No	82	54.7	71	71.0	11	22.0	32.295*	<0.001*
Yes	68	45.3	29	29.0	39	78.0		
Overall MACCE								
No	135	90.0	93	93.0	42	84.0	3.000	0.083
Yes	15	10.0	7	7.0	8	16.0		
Stroke	1	0.7	1	1.0	0	0.0	0.503	^{FE} p=1.000
Acute stent thrombosis	2	1.3	1	1.0	1	2.0	0.253	^{FE} p=1.000
Death	14	9.3	6	6.0	8	16.0	3.939	^{FE} p=0.071
DHF								
No	125	83.3	91	60.7	34	22.7	12.696*	<0.001*
Yes	25	16.7	9	9	16	32		
Vascular complications								
No	136	90.7	97	97.0	39	78.0	14.220*	^{FE} p<0.001*
Yes	14	9.3	3	3.0	11	22.0		
CIN								
No	106	70.7	83	83.0	23	46.0	22.014*	<0.001*
Yes	44	29.3	17	17.0	27	54.0		

Table (2): Comparison between the two studied groups according to CV – outcomes during 1 year follow-up

	Total (n = 136)		HbA1c				χ^2	p
CV – outcomes during 1 year follow-up			< 6.5 (n = 94)		≥ 6.5 (n = 42)			
	No.	%	No.	%	No.	%		
Overall CV – outcomes during 1 year follow-up								
No	62	45.6	50	53.2	12	28.6	7.094*	0.008*
Yes	74	54.4	44	46.8	30	71.4		
Overall MACCE								
No	103	75.7	74	78.7	29	69.0	1.479	0.224
Yes	33	24.3	20	21.3	13	31.0		
Stroke	0	0.0	0	0.0	0	0.0	–	–
MI	15	11.0	12	12.8	3	7.1	0.935	^{FE} p=0.393
Death	10	7.4	5	5.3	5	11.9	1.848	^{FE} p=0.284
Repeated revascularization	9	6.6	3	3.2	6	14.3	5.782*	^{FE} p=0.025*
DHF								
No	84	61.8	68	72.3	16	38.1	14.416*	<0.001*
Yes	52	38.2	26	27.7	26	61.9		

Conclusion

Our study demonstrated that higher admission HbA1c level was associated with higher rates of in-hospital and 1-year follow-up cardiovascular-outcomes mainly due to decompensated heart failure. Admission levels of HbA1c were not an independent predictor of MACCE during hospital-stay or MACCE during 1-year follow-up in STEMI patients underwent PPCI.