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Value of Systemic Inflammatory Response Index as a Novel Prognostic Biomarker and Severity Assessment in Patients with Acute Coronary Syndrome

Elsayed Abdelkhalik El Darky, Hazem Abdelraouf Mohamed Khadra*, Ali Ibrahim Atia, Mahmoud Saeed Abdalnaby

Department of Cardiology, Faculty of Medicine, Benha University, Egypt

*** Corresponding author:** Hazem Abdelraouf Mohamed Khadra, **Mobile:** (+20) 01095575348, **Email:** h_raouf_92@yahoo.com

ABSTRACT

Background: Over 15 million people died globally from acute coronary syndrome (ACS) in 2019, with individuals under 70 years old accounting for 40% of these untimely fatalities.

Objective: To investigate the prognostic value of systemic inflammatory response index (SIRI) in ACS patients as an independent risk factor for adverse events, and assessment severity of coronary artery disease.

Patients and Methods: A prospective cohort study was conducted on 130 patients with ACS patients (ST-elevation myocardial infarction (STEMI), non-ST elevation myocardial infarction (NSTEMI), Unstable Angina). In addition to evaluation of SIRI, comprehensive clinical evaluations, lab tests, and subsequent appointments were conducted for thorough analysis. **Results:** The mean SIRI was 1.042 ± 0.4, the mean Syntax Score was 18.77 ± 3.54. There was non-significant difference in between the two groups as regard to sex, age, SBP, DBP, and HR. There was a significant difference in between survived and died cases as regard to family history, Killip class and number of vessels affected, and also, in between SYNTAX score more than 22 and below 22 as regard to troponin, creat, cholesterol, neutrophils, and monocytes. The Sensitivity of SIRI and SYNTAX score as a predictor of outcome of ACS was 90% and 84.85%, the specificity was 94% and 82.69% and the cut-off point was >0.744 and >22 respectively. There was a significant positive correlation in between SIRI and Age, Killip class, cholesterol, lymphocytes, number of vessels affected, Syntax score, number of dead cases, number of non-fatal MI, and number of strokes. According to the SIRI, univariate analysis showed that the most prevalent unfavourable outcome was death, non-fatal myocardial infarction, and stroke.

Conclusions: SIRI could be used as an inflammatory biomarker for the prognosis of patients with ACS.

Keywords: ACS, Prognostic biomarker, SIRI, STEMI, NSTEMI.

INTRODUCTION

The term "ACS" describes a set of illnesses that includes unstable angina, STEMI, and NSTEMI. This particular kind of coronary heart disease (CHD) accounts for one-third of all fatalities in those over 35. While ACS is usually symptomatic, many types of CHD may not be [1]. Reduced blood supply to a portion of the cardiac muscle is the fundamental pathophysiology of ACS and is typically brought on by plaque rupture and thrombus development. Atherosclerosis may or may not be present in the underlying vasospasm that causes ACS. A portion of the heart's musculature reduces blood flow as a result, which initially causes ischemia and then causes myocardial infarction (MI) [2].

Clinical manifestation, ECG results, and biochemical proof of cardiac damage are necessary for the diagnosis of ACS [3]. Peripheral blood inflammatory cell count and its associated markers are now often employed in clinical practice as a reflection of inflammation. These markers are thought to be readily available biomarkers linked to an elevated risk of CAD, stroke, and mortality overall [4].

The systemic inflammatory response index (SIRI) is a new indication that has just surfaced. Based on the absolute counts of three distinct inflammatory cell types—neutrophils, monocytes, and lymphocytes—SIRI is a composite indicator [4]. High SIRI levels are associated with a higher risk of MI and mortality in general [5]. A technique called the Synergy between PCI with Taxus and CABG (SYNTAX) score was created. It uses the structural characteristics of the coronary lesions as a guide to determine which patients will be suitable for PCI [6].

Our study investigated the prognostic value of SIRI in ACS patients as an independent risk factor for adverse events, and assessment severity of CAD.

PATIENTS AND METHODS

Patients: This prospective cohort study involved 130 patients with ACS patients (STEMI, non-STEMI, Unstable Angina). Participants were enlisted from the Cardiology Department, Benha University Hospitals through the period from December 2022 to December 2023.

Inclusion criteria: ACS patients (STEMI, NON-STEMI, Unstable Angina).

Exclusion criteria: Patients with infection, chronic stable angina, rheumatic disease, history of coronary artery bypass, graft surgery, active bleeding, hypersensitivity to contrast agents, other comorbidities as (illnesses related to the mind, pregnancy, breast feeding, severe renal impairment, or advanced live disease), any contraindication for the use of dual antiplatelet therapy, life expectancy <6 months, and patient refusal.

Methods:

All patients underwent: Medical history: Demographics: (age and sex), risk factors: diabetes mellitus, hypertension, dyslipidemia, smoking, family history of CAD. Physical examination (Pulse, chest examination, cardiac examination, systolic and diastolic blood pressure).

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Resting ECG: Twelve leads ECG has been done at rest, in supine position and before enrolment into the study, to identify heart rate, rhythm and the presence of ischemic changes. It was recorded using a 10-mm/mV gain and a paper speed of 25 mm/s.

Laboratory tests: CBC, cardiac enzymes (CK-MB), serum creatinine, and lipid profile (cholesterol, TG, LDL and HDL).

Systemic inflammation response index (SIRI): Cut-off point was: 0.744.

Echocardiography: Transthoracic echocardiographic examinations has been performed using a Philips EPIQ 7C machine with simultaneous ECG signal. Subjects were examined in the Lt. lateral decubitus position to assess ejection fraction.

Coronary angiography: All patients had coronary angiography using the Judkins method. All pictures were examined by an expert operator, severe coronary artery disease defined as > 70% luminal diameter stenosis, and the SYNTAX score was generated.

The SYNTAX score algorithm:
Dominance, number of lesions, and segmentation per lesion are all features. Total occlusion: number of segments implicated, age of the total occlusion (more than 3 months), blunt stump, bridging collaterals, first segment beyond the occlusion observable by antegrade or retrograde filling, and side branch involvement. Trifurcation refers to the number of sick segments. Bifurcation characteristics include aorto-ostial lesion, significant tortuosity, length greater than 20 mm, extensive calcification, and thrombus. Diffuse disease/small vessels: The number of segments that have diffuse disease or tiny vessels.

Six months follow up of MACE: Overall death, non-fatal MI, non-fatal stroke, unplanned repeat revascularization (URR).

Ethical considerations:
Benha Medical Ethics Committee of the Benha Faculty of Medicine approved this study. After obtaining the necessary information, all participants provided signed consent. The Helsinki Declaration was observed throughout the study's duration.

Statistical analysis:
The acquired data were reviewed, coded, and organised using SPSS version 27.0. Quantitative data were presented as range, mean±SD, and median. The frequencies and percentages of categorical data were calculated. To compare categorical variables between groups, a chi-squared test was used. Fisher's Exact or Monte Carlo correction was used to adjust chi-square when more than 20% of the cells had an anticipated count of less than 5. Mann Whitney test was used to compare two investigated groups with abnormally distributed quantitative variables. Statistical tests were conducted bilaterally, with P values of < 0.05 considered significant.

RESULTS

Of the 130 patients enrolled during the study period, the mean age was 56.22± 5.80 years, 94 patients (72.3%) were males. 91 patients (70%) had hyperlipidemia. As regard to clinical presentation, 48 (36.92%) patients had NSTEMI and 50 (38.46%) patients had STEMI. The mean neutrophils count was 4.32± 0.7, the mean monocytes count was 0.711± 0.17 and the mean lymphocytes count was 1.44± 0.35 (Table 1).

Table (1): Distribution of the examined cases based on demographic data, clinical picture and investigation

		No.	%
Sex (n = 130)			
Male		94	72.3
Female		36	27.7
Age (years) (n = 130)			
Min. – Max.		33.0 – 73.0	
Mean ± SD.		**56.22**± 5.80	
Median		56.0	
DM (n = 130)			
Yes		48	36.9
No		82	631
Htn (n = 130)			
Yes		50	38.46
No		**80**	**61.53**
Smoking			
Yes		24	18.46
No		106	81.53
Hyperlipidemia (n = 130)			
Yes		91	70
No		39	30
Family History			
Yes		16	12.30
No		114	87.69
Clinical Presentation (n = 130)			
UA		32	24.61
NSTEMI		48	36.92
STEMI		50	38.46
Lab markers	**CK MB IU/L**	89.80± 22.03	
	Troponin	0.89± 0.21	
	Creat mg	1.1±0.26	
	Cholesterol mg/dL	174.15± 14.97	
	Neutrophils	4.32± 0.7	
	Monocytes	0.711± 0.17	
	Lymphocytes	1.44± 0.35	

There were 60 (46.15%) patients had RCA. According to number of vessels affected, the majority of patients 85 (65.38%) had single vessel affection. According to MACE in hospital complications, revascularization was seen in 33 (25.38%) of the patients. According to MACE Follow UP, 7 (5.38%) were dead cases, and revascularization was seen in 55 (42.3%) of the patients (Table 2).

Table (2): Distribution of the studied cases according to angiographic finding, number of vessels affected, MACE in hospital complications, and MACE Follow UP

	No.	%
LM (n =130)		
Yes	20	15.38
No	110	84.61
LAD (n =130)		
Yes	49	37.69
No	81	62.30
RCA (n =130)		
Yes	60	46.15
No	70	53.84
LCx (n =130)		
Yes	55	42.30
No	75	57.69
Number of vessels affected		
Single	85	65.38
Two	36	27.69
Three	9	6.92
MACE Follow UP		
Death	7	5.38
Non-fatal MI	21	16.15
Stroke	47	36.15
Revascularization	55	42.3

The mean SIRI was 1.042 ± 0.4 and the mean Syntax Score was 18.77 ± 3.54. As regard to Killip class, class 1 and class 2 were the most common classes (Table 3).

Table (3): Distribution of the studied cases according to blood pressure and HR, SIRI and Syntax Score, ECHO, Killip class

		Mean ± SD	
Clinical variations	**SBP**	122.36± 13.55	
	DBP	79.12± 10.22	
	HR	100.97± 3.41	
SIRI		1.042 ± 0.24	
Syntax Score		18.77 ± 3.54	
ECHO	**LVEF%**	62.67± 1.5	
	EDV (ml)	118.43± 2.52	
	ESV	49.08± 2.11	
Killip class		**No.**	**%**
1		55	42.30%
2		51	39.23%
3		21	16.15%
4		3	2.30%

The statistical analysis indicated that there was non-significant difference in between the two groups as regard to sex, age, SBP, DBP, and HR. There was a statistically significant difference in between survived and died cases as regard to family history, Killip class and number of vessels affected (Table 4).

Table (4): Relation between outcome and demographic data, clinical characters of the studied cases

Clinical characters o		**Outcome**				**p**
		Survived		**Died**		
		No.	**%**	**No.**	**%**	
Sex		**(n = 123)**		**(n = 7)**		
Male		89	72.35	5	71.42	**^{FE}p=1**
Female		34	27.64	2	28.57	
Age (year) Mean ± SD Median		56.68 ± 7.75 56		54.54 ± 7.92 54		0.514
SBP Mean ± SD		125.10 ± 3.74		119.09 ± 2.11		0. 781
DBP Mean ± SD		79.80 ± 2.25		80.74 ± 2.51		0.615
HR Mean ± SD		94.09 ± 3.05		94.58 ± 4.23		0.922
Family History	Yes	12	9.75	4	57.14	**<0.001 ***
	No	111	90.24	3	42.85	
Hyper-lipidemia	Yes	84	68.29	7	100	0.074
	No	39	31.70	0	0	
Clinical Present-ation	UA	29	23.57	3	42.85	0.097
	NSTEMI	44	35.77	4	57.14	
	STEMI	50	40.65	0	0	
Killip class	1	51	41.46	4	57.14	**^{MC}p= 0.016***
	2	51	41.46	0	0	
	3	21	17.07	0	0	
	4	0	0	3	42.85	
Number of vessels affected	single	82	66.66	3	42.85	**^{FE}p=< 0.001***
	two	36	29.26	0	0	
	three	5	4.06	4	57.14	

*: Significant

According to diagnosis, there was significant difference among the three groups as regard to sex and age (Table 5).

Table (5): Relation between diagnosis and demographic data of the studied cases

Clinical characters	**Diagnosis**						**p**
	UA		**NSTEMI**		**STEMI**		
	No.	**%**	**No.**	**%**	**No.**	**%**	
Sex	**(n = 32)**		**(n = 48)**		**(n = 50)**		
Male	20	62.5	35	72.91	39	78	0.308
Female	12	37.5	13	27.08	11	22	
Age (year) Mean ± SD	58.53 ± 3.57		55.24 ± 4.57		54.52± 4.56		0.044*
SBP Mean ± SD	120.35 ± 1.45		124.52 ± 2.21		125.23 ± 1.35		0. 562
DBP Mean ± SD	80.10 ± 1.45		80.43 ± 1.45		80.84 ± 1.46		0.942
HR Mean ± SD	93.46 ± 2.16		93.69 ± 2.68		94.16 ± 2.01		0.973

*: Significant

There was a statistically significant difference in between UA, NSTEMI and STEMI groups as regard to CK MB, troponin, creat, cholesterol, neutrophils, and monocytes (Table 6).

Table (6): Differences in selected parameters between patients with different diagnosis

	UA (n=32) No (%)	NSTEMI (n=48) No (%)	STEMI (n=50) No (%)	p-value
CK MB IU/L	81.40± 19.25	95.30± 13.56	99.64± 15.53	**0.0171***
Troponin	0.81± 0.18	0.88± 0.21	1.31± 0.3	**0.034***
Creat mg	2.11± 0.50	2.23± 0.51	2.35± 0.52	**0.004***
Cholesterol mg/dL	168.15± 12.47	175.45± 10.97	184.96± 11.67	**0.046***
Neutrophils	3.73± 0.4	4.52± 0.2	5.06± 0.05	**0.037***
Monocytes	0.516± 0.11	0.541± 0.11	0.841± 0.20	**0.024***
Lymphocyte	1.49± 0.36	1.44± 0.34	1.48± 0.36	**0.835**

*: Significant

There was non-statistically significant difference in between SYNTAX score more than 22 and below 22 as regard to sex, age, SBP, DBP, and HR (Table 7).

Table (7): Relation between outcome and demographic data of the studied cases

Clinical characters	**SYNTAX score**				**p**
	>22		**<22**		
	No.	**%**	**No.**	**%**	
Sex	**(n = 70)**		**(n = 60)**		
Male	61	72.80	33	68.75	<0.001*
Female	9	27.19	27	31.25	
Age (year) Mean ± SD	55.32 ± 6.62		55.37 ± 6.42		0.737
SBP Mean ± SD	122.12 ± 2.54		120.32± 2.42		0. 568
DBP Mean ± SD	81.83 ± 1.43		81.73 ± 1.54		0.843
HR Mean ± SD	93.39 ± 2.56		93.47 ± 2.57		0.983

*: Significant

There was a statistically significant difference in between SYNTAX score more than 22 and below 22 as regard to troponin, creat, cholesterol, neutrophils, and monocytes (Table 8).

Table (8): Differences in selected parameters between patients with different diagnosis

	SYNTAX score >22	**SYNTAX score <22**	**p-value**
CK MB IU/L	90.42± 20.13	89.71± 20.24	**0.321**
Troponin ng/ml	0.84± 0. 19	0.80± 0.16	**0.044***
Creat mg/dl	2.31± 0.51	2.13± 0.48	**0.034***
Cholesterol mg/dL	170.15± 9.52	165.45± 11.35	**0.048***
Neutrophils	4.46± 0.3	3.46± 0.6	**0.037***
Monocytes	0.553± 0.1	0.515± 0.12	**0.031***
Lymphocyte	1.45± 0.35	1.49± 0.36	**0.489**

*: Significant.

The sensitivity of SIRI as a predictor of outcome of ACS was 90%, the specificity was 94% and the cut-off point was >0.744.

The sensitivity of SYNTAX score as a predictor of outcome of ACS was 84.85%, the specificity was 82.69% and the cut-off point was >22 (Figure 1).

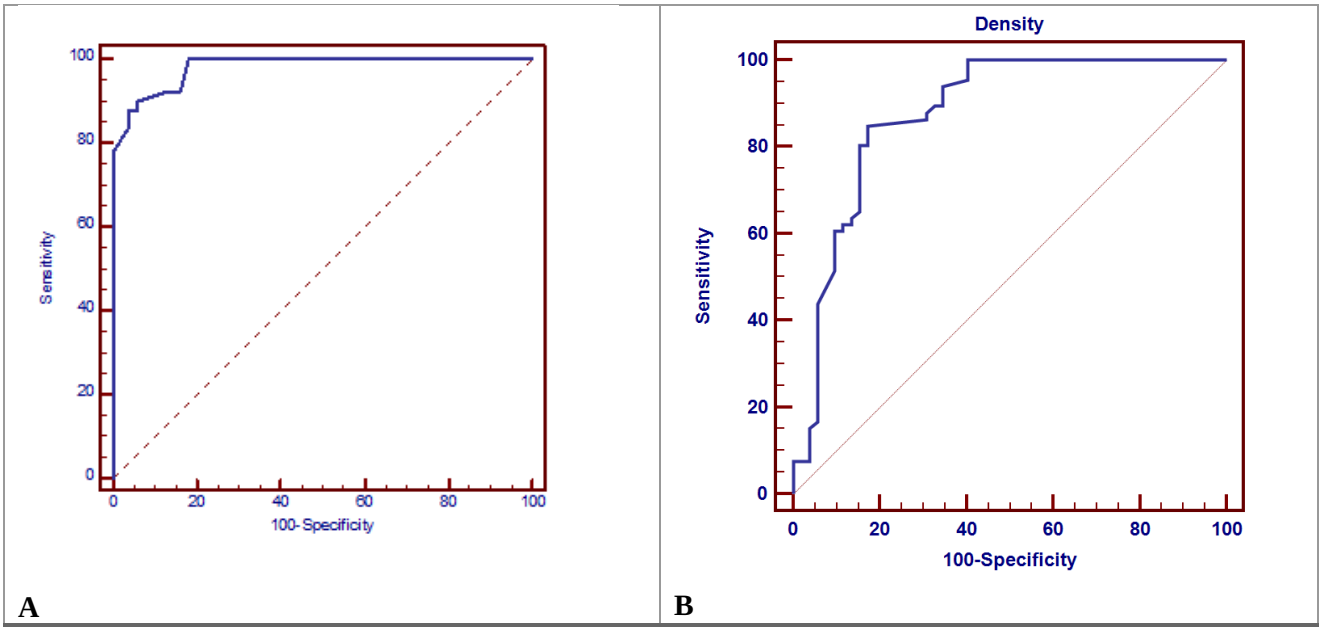


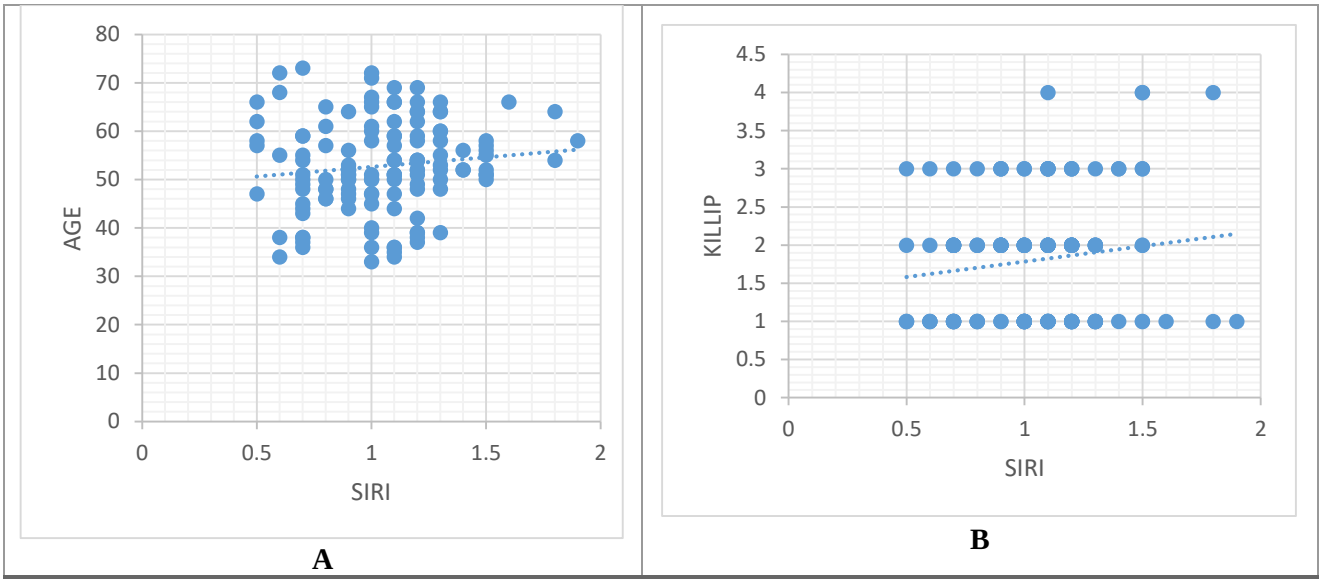
Figure (1): ROC curve of (A) SIRI and (B) syntax as a predictor of outcome of Acute Coronary Syndrome.

There was a significant positive correlation in between SIRI and age, Killip class, cholesterol, lymphocytes, number of vessels affected, Syntax Score, number of dead cases, number of non-fatal MI, and number of strokes (Table 9 and figure 2).

Table (9): Correlation between SIRI and biochemical investigation data.

	SIRI	
	r	**P-value**
Age	0.580	0.008*
Killip class	0.961	0.017*
CK MB IU/L	0.067	0.646
Troponin	0.045	0.759
Creat mg	0.053	0.717
Cholesterol mg/dL	0.802	0.023*
Neutrophils	0.064	0.657
Monocytes	0.532	0.732
Lymphocytes	-0.103	0.047*
Number of vessels affected	0.882	0.027*
Syntax Score	0.270	0.028*
Number of dead cases	**0.304***	**0.032***
Number of non-fatal MI	**0.864**	**0.044***
Number of strokes	**0.936**	**0.037***
Number of Revascularization	**0.383**	**0.494**
Heart Rate	0.064	0.659

*: Significant



A **B**

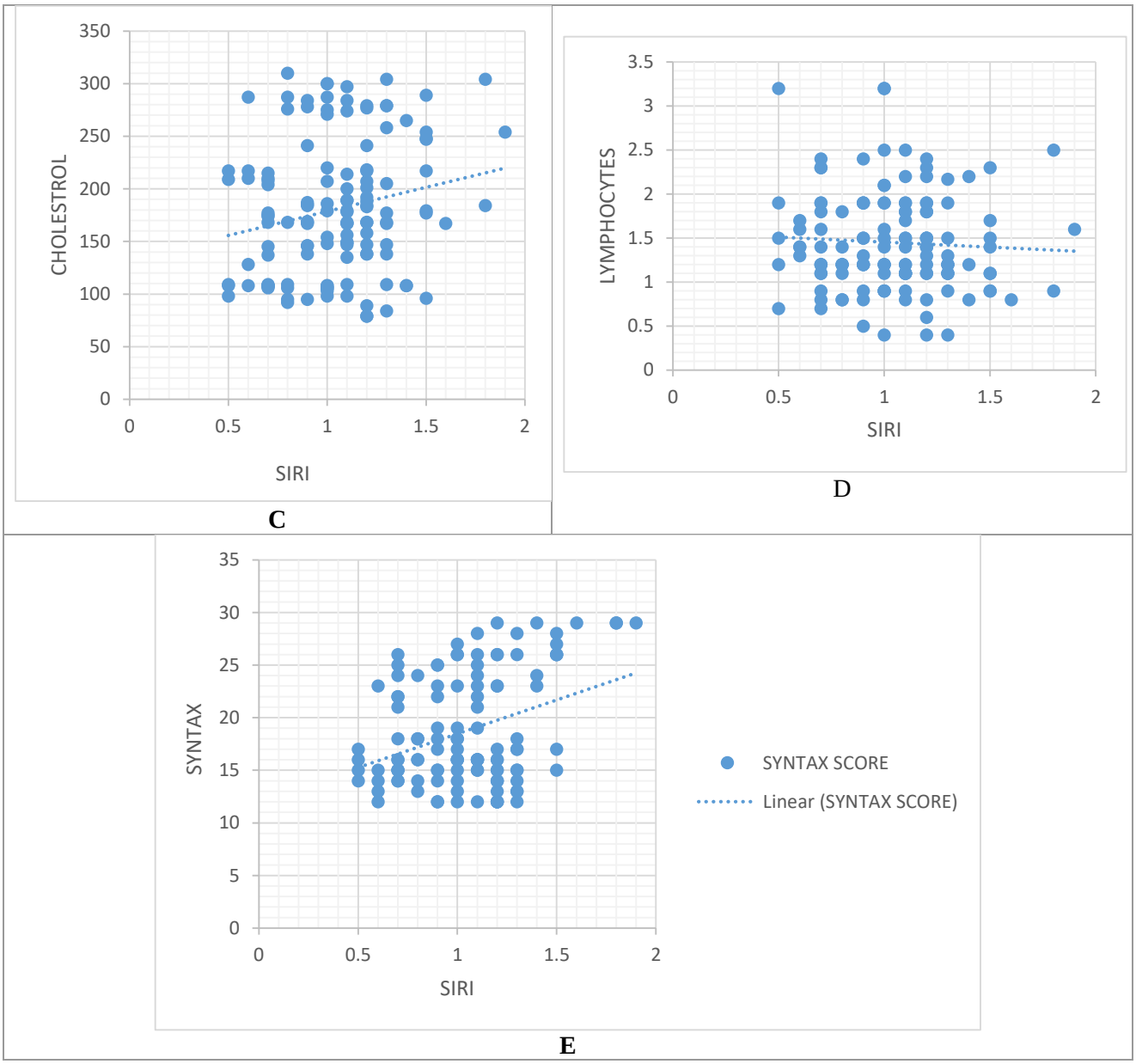


Figure (2): Correlation between Siri and (A) Age, (B) Killip class, (C) Cholesterol level, (D) Lymphocytes count, and (E) Syntax score.

Death, Non-fatal MI, Stroke were the most common adverse prognosis according to the SIRI by univariate analysis (Table 10).

Table (10): Univariate and multivariate analysis for adverse prognosis according to the SIRI:

	Univariate		**Multivariate**	
	p	OR (95% C.I)	p	OR (95% C.I)
Death	0.030*	1.032(1.005 – 1.058)	0.145	1.022(0.693 – 1.072)
Non-fatal MI	0.003*	2.40 (1.35–5.79)	0.402	0.805 (0.58–1.35)
Stroke	0.008*	1.146(1.076 – 1.563)	0.744	1.017(0.509 – 1.177)
Revascularization	0.245	1.04 (0.64–1.76)	0.248	2.83 (1.30–5.82)

*: Significant

DISCUSSION

A new indicator known as the SIRI has surfaced recently. SIRI, which is a composite indicator derived from the absolute count of three distinct inflammatory cells—neutrophils, monocytes, and lymphocytes—has a strong correlation with hyperuricemia, malignancy, rheumatoid arthritis, and stroke. A higher risk of MI and overall mortality is associated with elevated SIRI values[7].

The average age of the patients examined in this research was 56.22± 5.80 years, which near to that mentioned in the study done by **Han *et al.*** [7] who studied a total of 1724 patients and found that the mean age was 60 ± 10 years.

In the current study, there was male predominance as 94 patients (72.3%) were males and that was in agreement with **Jin *et al.*** [5] who found that 79.66% of their study cases were males. As regard to clinical presentation, there were 32 (24.61%) had UA, 48 (36.92%) patients had NSTEMI and 50 (38.46%) patients had STEMI while in the study done by **Dziedzic *et al.*** [8] there were 147(21%) patients had STEMI, 108 (15%) patients had NSTEMI, 78 (11%) patients had UA and 396 (53%) patients had stable CAD. Regarding smoking, 24 patients (18.46%) were smokers, which is near to the results in the study done by **Jin *et al.*** [5] who found that 27.08 % of patients were often smokers. The mean cholesterol was 174.15± 14.97 mg/dL, which is near to the results in the study done by **Dziedzic *et al.*** [8] as the mean cholesterol was 172.0 (70.3–338.3) mg/dL.

In the present study, the mean neutrophils count was 4.32± 0.7, the mean monocytes count was 0.711± 0.17, and the mean lymphocytes count was 1.44± 0.35and that agree with **Dziedzic *et al.*** [8], who found that the mean neutrophils count was 4.8 (1.4–44.7), the mean monocytes count was 0.7 (0.2–3.0) and the mean count of lymphocytes was 1.9 (0.4–41.8)

Regarding in hospital mortality in our study, there were no dead cases in the hospitals but in the study done by **González-Pacheco *et al.*** [9], of the 2464 patients, 139 (5.6%) died in the hospital; this discrepancy may be the result of a different sample size.

The mean SBP was 122.36± 13.55, the mean DBP was 79.12± 10.22 in the present study, and in the study done by **Jin *et al.*** [5], the mean SBP was 127.16±19.73, the mean DBP was 82.08±11.48, which is near to our results.

In the current study, the mean SIRI was 1.042 ± 0.4, which is near to the results in the study done by **Jentzer *et al.*** [10] who found that the mean SIRI was 1.1±1.0. The mean Syntax Score was 18.77 ± 3.54 with a significant positive correlation between SIRI and Syntax Score, which coincides with **Han *et al.*** [7] who found that there was a significant increase of Syntax Score with the increase in SIRI index.

In this study, there were 72.35% in survived and 71.42% in died were males, the mean age in survived was 56.68 ± 7.75 years and 54.54 ± 7.92 years in died with non-significant difference in between the two groups. As regard to sex and age, our results coincide with **Urbanowicz *et al.*** [11] who found that there were 77% in survived and 82% in died were males. There was no statistically significant difference in age or sex between the two groups; the mean age of the survivors was 64 years and the mean age of dead patients was 67 years. In the death group of our study, 28.57% of the participants were females, the median age was 54 years, and 31.25% of them had STEMI. These findings were consistent with those of a study conducted by **González-Pacheco *et al.*** [9], which found that the median age was 62 years, 31.7% of the participants were females, and 65.1% of the patients had STEMI.

In this investigation, there was a non-statistically significant difference between survivors and non-survivors regarding hyperlipidemia (P=0.883), which agreed with **Urbanowicz *et al.*** [11], who also found that there was non-statistically significant difference in between survivors and non survivors regarding to hyperlipidemia with P= 0.173.

The current investigation found a substantial difference between UA, NSTEMI, STEMI as regard to sex, age, cholesterol, neutrophils, and monocytes which was the same mentioned by **Dziedzic *et al.*** [8].

In the present study, the sensitivity of SIRI as a predictor of outcome of ACS was 90%, the specificity was 94% and the cut-off point was >0.744 and that coincide with **Han *et al.*** [7] who found that ROC curve research revealed that SIRI's C-index for predicting MACE was 0.624, with a sensitivity of 75.2% and specificity of 43.6%. Also, in the study done by **Zhao *et al.*** [12] the sensitivity SIRI as a predictor of outcome of ACS was 63%, the specificity was 71%.

In the current investigation, there was a positive significant positive correlation in between SIRI and age, which coincide with **Han *et al.*** [7] who found that individuals with higher tertials of SIRI were older.

The current study found a strong link between SIRI and lymphocytes, which was consistent with the findings of **Zhao *et al.*** [12], who also found a P <0.001 relationship. In ACS **Bian *et al.*** [13]; a decreased lymphocyte count has been linked to worse cardiovascular outcomes.

In our investigation, the mean monocytes was 0.711± 0.17 but there was non-significant correlation in between monocytes and SIRI. Also, there was a significant positive correlation in between SIRI and number of strokes, which in the same way with **Jin *et al.*** [5] **and Zhang *et al.*** [14] who said that a greater SIRI is strongly correlated with a higher risk of stroke and a worse outcome.

According to this study, a higher SIRI was associated with poorer clinical outcomes. Patients with a higher SIRI also had higher rates of smoking, dyslipidemia, history of MI, heart failure, and STEMI, as well as a higher SYNTAX score. These findings were

consistent with those of **Han *et al.*** [7] who also found a correlation between a higher SIRI and poorer clinical outcomes. A greater SIRI might be linked to low-grade inflammation that is more severe. In a similar vein, NLR has a positive correlation with the SYNTAX score and a negative correlation with HDL-C [15,16]. Diabetes and CKD are linked to higher NLR[17,18]. Additionally, MLR has a strong correlation with both coronary lesion vulnerability and the SYNTAX score[19,20].

Also in the study done by **Zhao *et al.*** [12] individuals with greater SIRI had lower rates of smoking and a history of peripheral artery disease, but they also had higher baseline levels of WBC, neutrophil, lymphocyte, PLT, NLR, and PLR upon admission. They also had a considerably higher incidence of CKD, ACS, and in-hospital mortality.

In contrast to traditional risk variables, SII predicts the occurrence of MACE (ACS, stroke not resulting in death, or death from heart disease), as demonstrated by the monitoring of over 5000 patients with CAD treated with PCI [21]. **Li *et al.*** [22] verified these findings by observing the correlation between MACE and lymphocyte-based inflammatory indicators as well as the superiority of SIRI over other inflammatory markers in this context. An additional 10-year study with 85,000 participants demonstrated a link between increased SIRI and a greater incidence of ACS in individuals under 60. Nevertheless, there was no association with SII [5].

The current investigation demonstrated a strong positive association between SIRI and the number of dead cases, which is consistent with **Urbanowicz *et al.*** [11] **and Tang *et al.*** [23]**,** who discovered that patients with a high SIRI had a much greater mortality rate than those with a low SIRI.

It's interesting to note that in the research by **Szymanska *et al.*** [24], patients with various eating habits had variations in SII and NLR levels. An anti-inflammatory diet led to lower SII and NLR readings in those with a lower ratio of omega-6 to omega-3 fatty acids. **Adali *et al.*** [25] emphasised the importance of medication for coronary artery disease. Compared to patients treated with clopidogrel, ticagrelor patients showed reduced values for SII, NLR, and PLR.

In the current study, according to the SIRI by univariate analysis, mortality, non-fatal MI, stroke, and URR (unplanned repeat revascularization) were the most prevalent unfavourable prognoses. These findings largely concur with those of **Han *et al.*** [7].

CONCLUSIONS

ACS patients (STEMI, NSTEMI, UA) had elevated values of the novel inflammatory marker SIRI. SIRI could be used as an inflammatory biomarker for the prognosis of patients with ACS and, appears to be a better predictor of cardiac events and shows sensitivity in predicting long-term outcomes. As a result, measuring SIRI offers a new approach to more aggressive therapies for high-risk populations.

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Conflict of Interest: Nil.

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