Original Article

Spectrum of Acute Coronary Syndrome in Patients Presenting to Cardiac Care Unit of Tertiary Care Hospital, Abbottabad

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ABSTRACT

Objective: To study the clinical spectrum of Acute Coronary Syndrome in patients presenting to Cardiac Unit of a tertiary care hospital.

Study Design: Cross-Sectional Observational Study

Place and Duration of Study: This study was conducted at the Department of Medicine, Combined Military Hospital, Abbottabad, Pakistan from October 2025 to March 2026.

Methods: Patients of both genders age 20-70 years, admitted to CCU, diagnosed with ACS were included. The demographic information, clinical presentation, risk factors, electrocardiographic findings, coro-angiography findings and inferred arterial territory were noted. Data were stratified according to age, risk factors, and clinical spectrum of ACS and variables compared within sub-types and arterial territory involved.

Results: Three hundred seventy patients diagnosed with ACS were included with median age of 51.00 (17.00) years including 221 (59.7%) male and 149 (40.3%) female patients. STEMI was most common ACS subtype in 226 (61.1%) patients, followed by NSTEMI in 100 (27.0%) and unstable angina in 44 (11.9%) patients. The left anterior descending (LAD) artery was most frequently involved territory in 174 (47.0%) patients.

Conclusion: Typical presentation of ACS was associated with STEMI, chest pain, ST elevation and LAD involvement. However, atypical cases were linked to NSTEMI or USA, dyspnea, ST depression or LBBB on ECG and PDA or Multivessel involvement on coro-angiography.

Key Words: Acute Coronary Syndrome (ACS), Coronary artery disease, Non- ST Elevation Myocardial Infarction (NSTEMI)

Citation of article: Khan SJ, Khan S, Ijaz S, Fatima SR, Ibrahim CGH, Saeed HA. Spectrum of Acute Coronary Syndrome in Patients Presenting to Cardiac Care Unit of Tertiary Care Hospital, Abbottabad. Med Forum 2026;37(7):60-65. doi:10.60110/medforum.370712.

INTRODUCTION

Acute Coronary Syndrome (ACS), contributes to 16% of all global deaths.(1) ACS is attributed to ST Elevation Myocardial Infarction (50.4%), Non- ST Elevation MI (33.5%) and Unstable Angina (16.1%) with prevalence of 200-400 per 100,000 in developing countries like Pakistan.(2) The overall prevalence of coronary artery disease is reaching up-to 34.9% with slightly male predominance 36.7% vs 34.9%.(3) The reported prevalence of ACS found to be 36.9% in ER patients presenting with chest pain.(4)

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Received: April, 2026
Reviewed: May, 2026
Accepted: June, 2026

Apart from classical presentation, ACS can present in variety of subtle / silent ways posing a diagnostic challenge, especially in emergency settings.(5) The ACS clinical spectrum is influenced by multiple factors including age, gender, race, smoking, obesity, comorbidities, and physiological reserve.(6)

Elderly patients tend to present atypically with dyspnea, syncope, or confusion. Diabetic individuals often experience silent or minimally symptomatic ischemia due to autonomic neuropathy. Women usually report non-classic symptoms such as fatigue, nausea, or upper abdominal discomfort rather than chest pain.(7) Conversely, younger patients may lack traditional risk factors altogether, resulting in underdiagnosis due to lower clinical suspicion.(8) In critically ill, particularly sedated, mechanically ventilated, or in shock, ACS may go unrecognized without active surveillance or continuous ECG monitoring.(9) In some cases, ischemia may manifest predominantly as dyspnea, fatigue, or sense of impending doom, with minimal or no pain, further complicating the clinical picture. Recognizing these uncommon patterns is critical in avoiding misdiagnosis or inappropriate triage.(10)

The objective of this study was to study the clinical presentation patterns of patients diagnosed with ACS

and identify the atypical presentations in clinical subgroups. Understanding these patterns will not only help in refining local diagnostic algorithms but also support early intervention strategies.

METHODS

This cross-sectional study was conducted in the Cardiac Care Unit of Combined Military Hospital, Abbottabad, Pakistan from October 2025 to March 2026 over a period of six month following formal approval from hospital ethical review board (CPSP/REU/Med-2022-012-19044 dated 07 OCT 25). The sample size was calculated using Open-Epi online sample size calculator by keeping a 95% confidence interval, 5% margin of error, and the reported 36.9% prevalence of acute coronary syndrome (ACS) in patients presenting with chest pain as reported by Sher et al.[11] The estimated sample size came out to be 350 patients. Non-probability consecutive sampling technique was used.

Inclusion Criteria: Patients of both genders aged 20-70 years, admitted to the CCU within 24 hours of symptom onset and diagnosed with ACS, were included.

Exclusion Criteria: Patients with previous documented coronary revascularization (coronary artery bypass grafting or percutaneous coronary intervention), readmission cases during the same episode of ACS, patients with incomplete clinical data, or those who refused to participate were excluded.

Patients with acute coronary syndrome (ACS) admitted to the Coronary Care Unit (CCU) were identified through daily screening. After obtaining informed consent, demographic data, cardiovascular risk factors, clinical presentation, ECG findings, cardiac biomarkers, and coronary angiography findings (where available) were recorded. The involved coronary artery territory (LAD, RCA, or LCx) was determined using ECG and/or angiographic findings.

Data were analyzed using SPSS version 25. Quantitative variables were expressed as mean ± SD or median (IQR), while categorical variables were presented as frequencies and percentages. Normality was assessed using the Kolmogorov–Smirnov test. Data were stratified by age and risk factors, and Fisher's exact test was applied after stratification. Comparisons were made among ACS subtypes and presentation patterns, with $p \leq 0.05$ considered statistically significant.

RESULTS

Three hundred seventy patients diagnosed with ACS were included with median age of 51.00 (17.00) years including 221 (59.7%) male and 149 (40.3%) female patients. Most patients 240 (64.9%) presented with typical symptoms while atypical presentation was noted in 130 (35.1%) cases with chest pain being the most frequent presenting symptom (56.5%) patients, followed by dyspnea in (33.8%). STEMI was the most common ACS subtype, diagnosed in 226 (61.1%) patients, followed by NSTEMI in 100 (27.0%) and unstable angina in 44 (11.9%) patients. The coro-angiography was performed in 238 (64.3%) patients and the left anterior descending (LAD) artery was the most frequently involved territory, in 174 (47.0%) patients. (Table-I)

Table No.1: Baseline Demographic and Clinical Characteristics of Study Participants (n=370)

Variable		Results
Age, Median years [IQR]		51.00 (17.00)
Gender, n(%)	Male	221 (59.7%)
	Female	149 (40.3%)
BMI, Median kg/m^2 [IQR]		25.00 (3.00)
Hypertension, n(%)		244 (65.9%)
Dyslipidemia, n(%)		237 (64.1%)
Diabetes, n(%)		218 (58.9%)
Smoking, n(%)		218 (58.9%)
Time since onset of ACS, Median hours [IQR]		5.00 (4.00)
Presentation	Typical	240 (64.9%)
	Atypical	130 (35.1%)
ECG Pattern at presentation, n(%)	ST Elevation	226 (61.1%)
	ST Depression	99 (26.7%)
	T-wave Inversion	21 (5.6%)
	LBBB	17 (4.5%)
	Other	7 (1.8%)
ACS Classification, n(%)	STEMI	226 (61.1%)
	NSTEMI	100 (27.0%)
	USA	44 (11.9%)
Artery Territory involved, n(%)	LAD	174(47%)
	RCA	30 (8.1%)
	LCX	32 (8.6%)
	PDA	92 (24.8%)
	Multivessel	42 (11.3%)
Killip Class, n(%)	Class I	173 (46.7%)
	Class II	158 (42.7%)
	Class III	23 (6.2%)
	Class IV	16 (4.3%)
Hospital Stay, Median days [IQR]		6.00 (3.00)
In-Hospital Mortality, n(%)		16 (4.3%)

Age and time since onset of ACS were comparable between typical and atypical presentation groups whereas BMI was higher in atypical presentation ($p=0.002$) and gender distribution differed ($p<0.0001$). Diabetes, hypertension, dyslipidemia, and smoking were significantly more frequent in typical presentation ($p<0.05$). STEMI were observed in 226(61.1%) patients with typical presentation while NSTEMI and USA were more frequent in atypical group ($p<0.0001$). (Table-2).

Table No.2: Comparison of Variables between Typical and Atypical Presentation (n=370)

Variable		Typical Presentation (n=240)	Atypical Presentation (n=130)	p-value
Age, Median years [IQR]		51.00 (17.00)	50.00 (19.00)	0.835
Gender, n(%)	Male	168 (45.4%)	53 (14.3%)	<0.0001
	Female	72 (19.5%)	77 (20.8%)	
BMI, Median kg/m^2 [IQR]		25.00 (4.00)	26.00 (4.00)	0.002
Hypertension, n(%)		170 (45.9%)	74 (20%)	0.008
Dyslipidemia, n(%)		173 (46.8%)	64 (17.3%)	<0.0001
Diabetes, n(%)		162 (43.8%)	56 (15.1%)	<0.0001
Smoking, n(%)		156 (42.2%)	62 (16.8%)	0.001
Presenting Symptom, n(%)	Chest Pain	208 (56.2%)	0	<0.0001
	Dyspnea	9 (2.4%)	116 (31.4%)	
	Epigastric Pain	7 (1.9%)	7 (1.9%)	
	Syncope	15 (4.1%)	7 (1.9%)	
ECG Pattern, n(%)	ST Elevation	226 (61.1%)	0	<0.0001
	ST Depression	5 (1.4%)	94 (25.4%)	
	T-wave Inversion	4 (1.1%)	17 (4.6%)	
	LBBB	4 (1.1%)	13 (3.5%)	
	Other	1 (0.3%)	6 (1.6%)	
ACS Classification, n(%)	STEMI	226 (61.1%)	0	<0.0001
	NSTEMI	5 (1.4%)	95 (25.7%)	
	USA	9 (2.4%)	35 (9.5%)	
Artery Territory involved, n(%)	LAD	174 (47%)	0	<0.0001
	RCA	19 (5.1%)	11 (3%)	
	LCX	23 (6.2%)	9 (2.4%)	
	PDA	12 (3.2%)	80 (21.6%)	
	Multivessel	12 (3.2%)	30 (8.1%)	
Time since onset of ACS, Median Hours [IQR]		5.00 (4.00)	5.00 (4.00)	0.907
Troponin, Median ng/mL [IQR]		108.44 (171.00)	62.67 (145.90)	0.008
Hospital Stay, Median Days [IQR]		6.00 (2.00)	6.00 (3.00)	0.597
Killip Class, n(%)	Class I	135 (36.5%)	38 (10.3%)	<0.0001
	Class II	78 (21.1%)	80 (21.6%)	
	Class III	16 (4.3%)	7 (1.9%)	
	Class IV	11 (3%)	5 (1.4%)	
Outcome, n(%)	Improved	145 (39.2%)	39 (10.5%)	<0.0001
	Discharged	75 (20.3%)	79 (21.4%)	
	Referred	9 (2.4%)	7 (1.9%)	
	Expired	11 (3%)	5 (1.4%)	

Table No.3: Comparison of Parameters across ACS Sub-Categories (n=370)

Variable		STEMI (n=226)	NSTEMI (n=100)	USA (n=44)	p-value
Age, Median years [IQR]		50.50(17.00)	50.00(19.00)	51.50(17.00)	0.842
Gender, n(%)	Male	158(42.7%)	41(11.1%)	22(5.9%)	<0.001
	Female	68(18.4%)	59(15.9%)	22(5.9%)	
BMI, Median kg/m^2 [IQR]		25.00(4.00)	26.00(4.00)	25.00(5.00)	0.009
Hypertension, n(%)		160(43.2%)	59(15.9%)	25(6.8%)	<0.001
Dyslipidemia, n(%)		163(44.1%)	50(13.5%)	24(6.5%)	<0.001
Diabetes, n(%)		153(41.4%)	46(12.4%)	19(5.1%)	<0.001
Smoking, n(%)		145(39.2%)	51(13.8%)	22(5.9%)	0.017
Presentation, n(%)	Typical	226(61.1%)	5(1.4%)	9(2.4%)	<0.001
	Atypical	0	95(25.7%)	35(9.5%)	
Presenting	Chest Pain	200(54.1%)	2(0.5%)	7(1.9%)	<0.001

Symptom, n(%)	Dyspnea	7(1.9%)	86(23.2%)	32(8.6%)	
	Epigastric Pain	6(1.6%)	5(1.4%)	3(0.8%)	
	Syncope	13(3.5%)	7(1.9%)	2(0.5%)	
Artery Territory involved, n(%)	LAD	174(47%)	0	0	<0.001
	RCA	17(4.6%)	9(2.4%)	4(1.1%)	
	LCX	20(5.4%)	11(3%)	1(0.3%)	
	PDA	7(1.9%)	72(19.5%)	13(3.5%)	
	Multivessel	8(2.2%)	8(2.2%)	26(7%)	
Time since onset of ACS, Median Hours [IQR]		5.00 (4.00)	5.00 (4.00)	6.00 (4.00)	0.759
Troponin, Median ng/mL [IQR]		106.33 (170.50)	53.88 (137.40)	130.99 (189.6)	0.001
Hospital Stay, Median Days [IQR]		6.00(2.00)	5.50(4.00)	6.00(3.00)	0.824
Killip Class, n(%)	Class I	129(34.9%)	27(7.3%)	17(4.6%)	<0.001
	Class II	73(19.7%)	65(17.6%)	20(5.4%)	
	Class III	14(3.8%)	2(0.5%)	7(1.9%)	
	Class IV	10(2.7%)	6(1.6%)	0	
Outcome, n(%)	Improved	139(37.6%)	29(7.8%)	16(4.3%)	<0.001
	Discharged	72(19.5%)	61(16.5%)	21(5.7%)	
	Referred	5(1.4%)	4(1.1%)	7(1.9%)	
	Expired	10(2.7%)	6(1.6%)	0	

Table No.4: Binary Logistic Regression for Predictors of Atypical Presentation

Variable	Univariate Logistic Regression			Multivariate Logistic Regression		
	OR	95% CI	p-value	OR	95% CI	p-value
Gender	3.39	2.171 – 5.293	<0.001	5.453	1.892 - 15.714	0.002
BMI	1.124	1.043 – 1.212	0.002	0.921	0.805 - 1.054	0.234
Diabetes	2.745	1.768 – 4.261	<0.001	1.801	0.877 - 3.699	0.109
Hypertension	1.838	1.178 – 2.868	0.007	0.856	0.332 - 2.208	0.748
Smoking	2.037	1.319 – 3.145	0.001	0.776	0.341 - 1.767	0.546
Dyslipidemia	2.663	1.707 – 4.154	<0.001	1.488	0.543 - 4.074	0.44
Arterial Territory Involved	4.239	3.259 – 5.515	<0.001	4.711	3.484 - 6.372	<0.001

Age and time since onset of ACS were comparable across ACS categories (p>0.05), while BMI differed significantly (p=0.009). STEMI patients were predominantly male and had a higher burden of cardiovascular risk factors (p<0.05). Typical presentation, chest pain, ST elevation, and LAD involvement were observed almost exclusively in STEMI whereas NSTEMI and USA were more frequently associated with atypical presentation, dyspnea, ST depression, and PDA or multivessel involvement (p<0.001) (Table-3).

On univariate logistic regression, gender, BMI, diabetes, hypertension, smoking, dyslipidemia, and arterial territory involved were significant predictors of atypical presentation (p<0.05). On multivariate analysis, only gender [OR 5.453, 95%CI 1.892–15.714; p=0.002] and arterial territory involved [OR 4.711, 95%CI 3.484–6.372; p<0.001] remained independently associated with atypical presentation. (Table-4)

DISCUSSION

In this study, a wide spectrum of clinical presentations of acute coronary syndrome was observed, highlighting the heterogeneity with which ACS manifests in real-world settings. Although the majority of patients presented with typical symptoms (64.9%), many exhibited atypical presentations (35.1%), underscoring the diagnostic challenges of non-classical ACS. The study indicated a clear distinction between typical and atypical ACS presentation whether clinical, electrocardiographic, or angiographic. STEMI was observed to be the most common ACS spectrum in 61.1%, NSTEMI in 27.0% and USA in 11.9% patients. It was in accordance with other studies as Beza et al reported that among patients presenting to cardiac emergency, STEMI was diagnosed in 62.3% patients and NSTEMI in 38.5% of the patients.[12] Similarly, Koirala et al concluded that patients presenting with ACS, STEMI was diagnosed in 74.5% patients with predominantly male gender and mean age of 57.39 ± 2.3 years.[13]

HTN was found to be most prevalent in 65.9% patients, dyslipidemia in 64.8% and DM was present in 58.9% patients of ACS. Similarly, Abbas et al found HTN as risk factor of ACS in 57.4%, diabetes in 33.9% and smoking in 21.7% patients presenting to cardiac emergency.[14] However, Shahid et al reported patients presenting with acute chest pain, diabetes mellitus was

most common underlying risk factor in 53.3% followed HTN in 33.3%.[15]

Pre-hospital delay of median 5.00 [4.00] hours were noted in current study which was mostly in diabetics and elderly patents. Mohan et al observed that 42% patients of ACS presented to ER with > 6-hours delay, significantly higher among elder patients (p=0.01), diabetics (p=0.02) and patients from rural areas (p=0.04).[16] In another study, pre-hospital delay of 53.9 ± 18 hours was noted in patients presenting with acute chest pain and in those, ECG showed STEMI and NSTEMI in 54.1% and 45.9% patient respectively. It was also observed that 30.6% patients showed signs of LVF with Killip class I and II as reported by Marie et al.[17] Our study found that Killip class-I and II were frequent at presentation in 46.7 % and 42.7% patients respectively.

LAD found to be the most frequent involved arterial territory in 47.0% cases on Coro-Angiography. Malik et al concluded that TVCAD was found in 42.4%, DVCAD in 18.6% and SVCAD in 36.4% patients of ACS. The most common culprit artery was found to be left circumflex artery (LCx) in 65.3% patients, followed by left anterior descending (LAD) in 58.5% and right coronary artery (RCA) in 39.0% cases.[18]

In our study in-hospital mortality was noted to be 4.3% with 4.3% patients being referred to other cardiac setups. Gender, BMI, risk factors (DM, HTN, smoking, dyslipidemia) and territory involved were independent predictors of ACS and in-hospital mortality. This suggests that anatomical and biological factors may also play a role in shaping symptom presentation than comorbid risk factors alone. Nilsson et al reported that in ACS patients, coronary angiography done in 53.0% patients and in-hospital mortality was 3.2% with age > 80 years being strongest risk factor (OR: 4.8, p<0.001) along with smoking, diabetes, HTN and dyslipidemia.[19] Kim et al reported among STEMI patients, major adverse cardiac events (MACE) and in-hospital mortality were observed in 23.17% and 19.51% respectively.[20]

CONCLUSION

This study concluded that typical presentation of ACS was more associated with STEMI, chest pain, ST elevation on ECG, LAD involvement leading to timely coronary angiography. Diabetes, HTN, smoking and dyslipidemia were found to be independent risk factors of ACS clinical spectrum linked with higher in-hospital mortality.

Author's Contribution:

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Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

Conflict of Interest: The study has no conflict of interest to declare by any author.

Source of Funding: None

Ethical Approval: No. CPSP/REU/Med-2022-012-19044 Dated 07.10.2025

REFERENCES

1. Timmis A, Aboyans V, Vardas P, Townsend N, Torbica A, Kavousi M, et al. European Society of Cardiology: the 2023 Atlas of Cardiovascular Disease Statistics. Eur Heart J 2024;45(38):4019–4062. https://doi.org/10.1038/s41569-023-00884-0
2. Muqeet S, Ijaz S, Razzaq A, Mansoor B, Munir S, Akbar MA. Thirty-Day Mortality Frequency in Acute Coronary Syndrome Patients with Varying Hematocrit Levels. Pak Armed Forces Med J 2025;75(SUPPL-7):S1105–1109. https://doi.org/10.51253/pafmj.v75iSUPPL-7.13615
3. Ahmed S, Shah GA, Saghir T, Ahmed S, Mueed A, Roy N. The Crowd Of Acute Coronary Syndrome In A Rural Emergency Room Of Pakistan: Distribution Of Demographic, Clinical, And Angiographic Characteristics. Pak Heart J 2022; 55(4):351–356. https://doi.org/10.47144/phj.v55i4.2346
4. Sher A, Bashir MA, Humerah S, Khan MR, Raja NS, Hussain I. Prevalence of Acute Coronary Syndrome among Patients Presenting with Chest Pain. PJMHS 2022;16(10):932–934. https://doi.org/10.53350/pjmhs221610932
5. Rao SV, O'Donoghue ML, Ruel M, Rab T, Tamis-Holland JE, Alexander JH, et al. 2025 ACC/AHA/ACEP/NAEMSP/SCAI Guideline for the Management of Patients With Acute Coronary Syndromes: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Circulation 2025;151(13). https://doi.org/10.1161/CIR.0000000000001309
6. King-Shier K, Quan H, Kapral MK, Tsuyuki R, An L, Banerjee S, et al. Acute coronary syndromes presentations and care outcomes in white, South Asian and Chinese patients: a cohort study. BMJ Open 2019;9(3):e022479. https://doi.org/10.1136/bmjopen-2018-022479
7. DeVon HA, Mirzaei S, Zègre-Hemsey J. Typical and Atypical Symptoms of Acute Coronary Syndrome: Time to Retire the Terms? J Am Heart Assoc 2020;9(7):e015539. https://doi.org/10.1161/JAHA.119.015539

8. Yagel O, Shadafny N, Eliaz R, Dagan G, Leibowitz D, Tahiroglu I, et al. Long-Term Prognosis in Young Patients with Acute Coronary Syndrome Treated with Percutaneous Coronary Intervention. VHRM 2021;17:153–159. https://doi.org/10.2147/VHRM.S298436.
9. Hinton J, Mariathas M, Grocott MP, Curzen N. High sensitivity troponin measurement in critical care: Flattering to deceive or 'never means nothing'? J Intensive Care Society 2020;21(3): 232–240. https://doi.org/10.1177/175114371987 0095
10. Perona M, Cooklin A, Thorpe C, O'Meara P, Rahman MA. Symptomology, Outcomes and Risk Factors of Acute Coronary Syndrome Presentations without Cardiac Chest Pain: A Scoping Review. Eur Cardiol 2024;19:e12. https://doi.org/10.15420/ ecr.2023.45
11. Sher A, Bashir MA, Humerah S, Khan MR, Raja NS, Hussain I. Prevalence of Acute Coronary Syndrome among Patients Presenting with Chest Pain. Pak J Med Health Sci 2022;16(10):932–932. https://doi.org/10.53350/pjmhs221610932
12. Beza L, Leslie SL, Alemayehu B, Gary R. Acute coronary syndrome treatment delay in low to middle-income countries: A systematic review. IJC Heart & Vasculature 2021;35:100823. https://doi.org/10.1016/j.ijcha.2021.100823
13. Koirala P, Gajurel RM, Poudel CM, Shrestha H, Devkota S, Thapa S, et al. Study of clinical profile and outcomes of Percutaneous Coronary Intervention in ST Elevation Myocardial Infraction. Nepalese Heart J 2019;16(2):53–57. https://doi.org/10.3126/njh.v16i2.26318
14. Abbas S, Siddiqui AH, Cheema A, Abbas A, Jaffri SKA, Khan S, et al. Association Of Thrombolysis In Myocardial Infarction (Timi) Risk Score With Extent Of Coronary Artery Disease In Patients With Unstable Angina And NSTEMI. Pak Armed Forces Med J 2021;70(Suppl-4):S787-791. https://doi.org/10.51253/pafmj.v70iSuppl-4.6025
15. Shahid MF, Malik A, Kashif N, Siddiqi FA, Hammad M, Saeed HA. Risk Stratification of Acute-Onset Chest Pain: SVEAT Score Versus HEART and TIMI Scores. Cureus 2023. https://doi.org/10.7759/cureus.39590
16. Mohan B, Bansal R, Dogra N, Sharma S, Chopra A, Varma S, et al. Factors influencing prehospital delay in patients presenting with ST-elevation myocardial infarction and the impact of prehospital electrocardiogram. Ind Heart J 2018;70:S194–198. https://doi.org/10.1016/j.ihj.2018.10.395
17. Marie D, Mingou JS, Dia K, Gbadamassi SEOK, Fall PD, Diao M, et al. Clinical Presentation, Risk Factor, and Outcomes of Acute Coronary Syndrome in Women at an Urban Referral Center in Dakar, Senegal. gh 2019;14(1):35-36. https://doi.org/10.1016/j.gheart.2019.01.001
18. Malik SP, Khan MN, Kiani SS, Khan M, Toru FK, Anwar M, et al. Pattern of Coronary Artery Disease and Frequency of Left Circumflex Artery as a Culprit in Patients of Non-ST Elevation Acute Coronary Syndrome with a Normal Electrocardiogram. Pak Armed Forces Med J 2023; 73(SUPPL-3):S490-494. https://doi.org/10. 51253/pafmj.v73iSUPPL-3.10659
19. Nilsson T, Mokhtari A, Ekelund U. Complications in acute coronary syndrome with contemporary care, and predictors of high risk. Eur Heart J 2022;43(Supplement_2):ehac544.1332. https://doi.org/10.1093/eurheartj/ehac544.1332
20. Kim DY, Wala Z, Islam S, Islam R, Ahn M. Clinical characteristics and outcomes of ST-segment elevation myocardial infarction in a low income setting in rural Bangladesh. IJC Heart & Vasculature 2019;23:1-6. https://doi.org/10.1016/ j.ijcha.2019.100376.