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RESEARCH ARTICLE

CLINICAL CHARACTERISTIC AND PROGRESSION OF ACUTE CORONARY SYNDROME IN YOUNG PATIENTS IN ADEN-YEMEN 2024-2025

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Abstract

The prevalence of acute coronary syndrome (ACS) has been rising in the younger population worldwide. Although less common than in older populations, is a serious condition with unique risk factors and presentations. This linked to the growing prevalence of traditional cardiovascular risk factors among younger people, such as type 2 diabetes, hypertension, obesity, and hyperlipidemia, which have led to a rise in atherosclerotic coronary artery disease (CAD). Additionally, emerging research points to the influence of less traditional risk factors, including chronic inflammation, autoimmune diseases, drug use, psychosocial factors, and novel biomarkers in the early onset of CAD. These factors collectively contribute to the rise in premature CAD, highlighting the need for improved prevention strategies and public health efforts focused on younger populations. The study aims to assess the characteristics and outcomes of ACS in young patients. A hospital-based descriptive cross-sectional study was conducted in 104 patients who were diagnosed and treated as ACS at private cardiac units of Aden-Germany Hospital in the period between April 2024 and January 2025 were studied with reference to clinical profile and risk factor analysis based on cardiac enzyme biomarkers and cardiac invasive and non- invasive assessments. The mean (± SD) age was) 28.8 ±09) years, 100 patients (96.2%) were male, 4(3.8%) were female. Smoking were with 56 (53.8%) and 48 (46.2%) were with Khat and shamma chewing risk factors. A high percentage of patients 90)86.5% (presenting with chest pain, with vast majority being non- diabetic 79 (98.8%). 57 (95%) of myocardial infarction (MI) patients with elevated ST segment (STEMI) were male. Elevated troponin level was highly significance (p value = 0.001). Most patients were with mild left ventricular ejection fraction and single coronary artery vessel affected (35.6%, 60.8% respectively). Killip class I represent the majority (61.5%) with a significance proportion (66.7%) were under the age of 30 and had non-elevated ST- segment (79.5%). The majority of the patients were male. Smoking, Kat and shamma chewing presumed risk factors. Killip class I and elevated ST segment quite common.

Keywords: Acute coronary syndrome; Risk factors; Prognosis; Young age.

Introduction:

Coronary artery disease (CAD) and acute myocardial infarction (AMI) are important causes of morbidity and mortality worldwide. While the incidence of CAD is well known to increase with age, the proportion of AMI events occurring in young patients is steadily increasing over time, particularly in young women. Coronary heart disease is the single most common cause of death in both death in both women and men in large parts of the industrialized world, although incidence of AMI increases sharply with age, women are less prone to develop AMI than men at any given age. [1]

The difference in age seems to be less pronounced for non-Q-wave AMI [2] and non-ST-elevation AMI (NSTEMI) and may be still smaller for unstable angina. [3] Women and men with acute coronary syndromes (ACS) have been found to have different clinical profiles and presentation. [4]

Acute coronary syndrome is the sudden imbalance between myocardial oxygen consumption and demand,

usually as the result of coronary artery obstruction, which causes an acute myocardial infarction. [5] Although ACS mainly occurs in individuals >50 years, younger adults can be affected as well. Forty-five years as the upper limit of defining young adults has been used in various studies and appears to be a reasonable boundary. [6]

In the last years, there has been an increase in ACS cases in young people. The cardiovascular risks of these patients are usually different.

Data on ACS prevalence risk factors and clinical outcome for young is limited [7]

Guidelines-coronary artery Disease registry data, approximately 10% of patients with ST- elevation MI (STEMI) were young patients, and 2% of these patients were women. Women were more likely to have lower quality of care and experienced less favorable short-term outcomes than men. [8]

Acute coronary syndrome is a condition in which arteries of the heart are damaged due to occlusion that results in a cardiac infarction. [9] This syndrome is an umbrella term for several different conditions including unstable angina. ACS is a health problem concerning mainly STEMI, NSTEMI and older patients over the age of 45 years old. ACS is also a serious health concern in younger population as it has seen an increase in prevalence in developing countries [10]

The vast majority of the young patients are men, with increasing of percentage women in older populations. [11] This syndrome is associated with numerous risk factors and they vary between different age, sex and nationality groups. The most prevalent risk factor was obesity and the second most prevalent risk factor was smoking. [12]

These young patients are more likely to suffer from STEMI but NSTEMI was the most prevalent type of ACS across all populations. It was found that younger patients have a better outcome than their older counterparts. [13] The prevalence of ACS among young individuals is increasing, but the phenotypic characteristics, causes and clinical outcomes in this group have not been well described. [14]

Young patients with ACS have unique characteristics with distinct risk factors and clinical manifestations. Prior studies have shown that family history, hypercholesterolemia, sedentary lifestyles, obesity and smoking were common risk factors in young patients with ACS compared to older age groups. Diabetes and smoking in young patients is a significant risk factor for recurrent coronary events and interventions, as well as mortality. In addition, there is an association between ethnicity and geographical location and the incidence of ACS events at a young age. [15]

When compared to an older population, STEMI is more common in young patients compared to non-ST-segment elevation myocardial infraction NSTEMI. [16] Young ACS patients have a lower incidence of multi-vessel and left main disease, [17] whereas involvement of the left anterior descending artery is more common. [18]

Previous studies in this population mainly focused on risk factors and the unique clinical characteristics of this group, while others focused on in-hospital and short-term outcomes which demonstrated improved outcomes in the young ACS population. [19] To date, only a limited number of studies have evaluated the long-term outcomes of this population, most of which were performed prior to the widespread use of the invasive strategy in patients with ACS. [20]

In Yemen, a poor country situated in the south of the Arabian Peninsula with around 35 million inhabitants and a significant young population, tobacco use in its different forms is a widespread habit among the youth. The ongoing 10-year civil war in Yemen has resulted in a huge destruction of the country's infrastructures and resulted in unprecedented humanitarian, psychological, social and economic consequences. [21] This in turn contributed to the indulgence of many deleterious habits, namely cigarette smoking, shisha use and khat chewing among the population, including adolescents and school children. Besides tobacco use, khat chewing is also a widespread socially rooted habit among the Yemeni population. However, despite this, there is a scarcity of data pertaining to the prevalence and associated factors of such habits among the youth in Yemen. It is estimated that over 80% of adult men and 30% of adult women chew khat daily. [22]

ACS patients in Yemen present at a relatively young age with high prevalence of Smoking, khat chewing and hypertension. STEMI patients present late, and their acute management is poor. In-hospital evidence-based medication rates are high, but coronary revascularization procedures were very low. In-hospital mortality was high and long-term mortality rates increased two folds compared with the in-hospital mortality. [23]

Materials &Methods:

Study Location and Population

This study focused on young patients experiencing acute chest pain or symptoms consistent with coronary artery disorders who coming to emergency department seeking care at private cardiac units at Aden-Germany Hospital - Aden governorate. The study included one hundred four (104) young patients with acute coronary syndrome. Prevalence based on clinical characteristic and progression of coronary syndrome was conducted between April 2024 and January 2025.

Study design

Collected and analyzed data provided by the studied patients using observational descriptive cross-sectional study adapted from the diagnostic questionnaire for coronary artery disorders to assess the prevalence of acute chest pain among young patients. Somatization and clinical practice (referral for ECG, Echocardiograph and PCI) were also assessed.

Sample selection

Data from 105 adult studied patients were eligible for inclusion criteria pooled for analysis, older than 18 years of age who were showing symptoms consistent with coronary artery syndrome. Patients aged under 18 years old or over 35 were excluded from the analysis.

Sample size

The study involved 104 adults who were aware they were participating before undergoing diagnostic tests for chest pain. They were assessed at a private emergency cardiac unit. The study included taking history of their chest pain as part of the diagnostic process.

Data collection

Proportional quota-based sampling used in this study to collect the data included questions on the following: age; sex; smoking status smoking history, chewing Kat, chewing Shama, BMI, including weight and height. the participants or their families were asked to report any healthcare visits or provide access to hospital documents. Furthermore, the subjects were asked to disclose organic heart disease or any medicines taken.

Complete physical examination was performed on all studied patients with pivotal physical findings were recorded for the study. (General examination, systemic examination and assessing vital signs focused on blood pressures measurement, pulse rate and respiratory rate) Patients were categorized based on them in-hospital outcome as either having died or survived during their hospital stay.

Height: Standing height was measured using a vertical measuring rod with a150 cm length and accuracy of 0.5 cm.

Weight: A standing scale was used to determine the patient's weight. Weight was measured with the subject wearing light indoor clothing without shoes. Then body mass index BMI was calculated by dividing body weight in kg /height in m2.

Body Mass Index (BMI): Body: A body mass index (BMI) was calculated by dividing weight (in kilograms) by height (in meters squared) and categorize as:

- Obesity (more than 30 kg/m2)
- Over weight (25-29.9 kg/m2)
- Normal (18-24.9 k/m2)
- Underweight (less than 18 kg/m2)

Para clinical investigations

- Blood samples: The blood was drawing through the technician after ties a tourniquet aroundthe extended, cleaned and antiseptic upper arm:
- Complete blood count (CBC): 2 ml of lavender-top (K2 EDTA) tube collected of specimen required for CBC test. The sample is analyzed using automated blood analyzers provide a comprehensive assessment of blood cell characteristics, including the number and size, white blood cells (both total and differentiated) to measure the number and size of red blood cells, white blood cells total and differentiated, platelets and hemoglobin concentration.
- Random blood sugar: for assessing blood sugar level measurement 1ml of plasma specimen was required with use of labeled red-top- tube
- lipid panel: 2 ml of plasma after blood centrifugation was taken in green-top tube for cholesterol level measurement.
- Cardiac enzymes
- Troponin: 5 ml vein drawn with the aspect timing of the test relative to symptoms onset (6 to 12hours after the start of symptoms). sample of blood immediately with no frozen was used as test. Specimen. EDTA used as a suitable anticoagulant. The American Board of Internal Medicine are:
  - Troponin I: 0-0.04 ng/ml
  - Troponin T: 0-0.01 ng/ml
- ECG **A** standard supine 12-lead ECG of 25 mm/s and 10 mm/mV was used. The Philips ECG system was used for the baseline ECG data. We collected ECG papers of 105 patients. The STEMI and NSTEMI diagnostic labeling was classified based on medical records and the clinical judgment. In addition to ST-segment elevation, we annotated rate and rhythm to consider any abnormalities as potential indicators for arrhythmias complication.
- Echocardiography was recommended for all study population for assessing ejection fraction (EF) and investigate potential heart conditions including coronary artery abnormalities.
- PCI: After a good preparing by anti-platelets and glycoprotein IIb/IIIa inhibitors PCI was performed by interventional cardiologist for both a diagnostic and therapeutic procedures.

The severity of patients was assessing and predicting in-hospital potential outcome as either having died or

survived. This classification is a common method for analyzing the effectiveness of treatments and identifying factors that influence patient outcomes.

Statistical analysis:

Data processing was performed by the computer software program of the statistical package for social sciences (SPSS) version 20. Categorical variables were expressed as frequencies (numbers and percentage) and continues variables as mean ± standard deviation. The Chi-square or Fisher`s exact tests was used to evaluate potential association between categorical variables. Student's t test was used to compare between means and *P* value <0.05 element considered for interpretation the level of significance in the study.

Ethical consideration:

For ethical purpose, the study was conducted after the permission and approval from department of internal medicine, the department of postgraduate studies in the faculty of medicine- university of Aden. Permission was obtained from the private gastroenterology clinic. Informed consent from patients was obtained after explaining about the study nature, goals and taking their verbal permission and agreement to participant.

Results:

A total of 104 patients met eligibility criteria attenuated private cardiac emergency unit were included during a study period lasting more than one year. The Age of studied patients ranges from 18 to 45 years with a mean of 28.8(±09) years among them 100(96.8%)were males.

Table 1: Distribution of studied patients according to risk factors

Risk factors	No. of patients	Percentage (%)
Smoking	56	53.8
Khat	48	46.2
Shamma	48	46.2
DM	24	23.1
AHT	16	15.4
Family history	12	11.5
Dyslipidemia	4	3.8
BMI ranges (Kg/m2) Under weight Normal weight Over weight Obese	 0 36 40 28	 0 34.6 38.5 26.9

The table presents data on the prevalence of different risk factors within the studied patients. Smoking and Khat chewing were the most common risk factors it was found 53% for smoking and 46.2% for khat & Shamma. DM was 23.1%, AHT 15.4%, family history 11.5 % and dyslipidemia 3.8%. BMI distribution of studied patients across different BMI categories, 36(34.6) of patients classified as normal weight, 40(38.5) patients with overweight and 28(26.9) were obese. None of studied patients were classified as underweight.

Table 2: Distribution based on type of presentation of studied patients

Type of presentation	No. of patients	Percentage (%)
Chest pain	90	86.5
Vomiting	6	5.8
Epigastric pain	4	3.8
Dyspnea	9	8.7
Sweating	7	6.7
Nausea	3	2.9
Sudden collapse	2	1.9

The table shows the distribution of patient's presentation, chest pain being the most common presentation 86.5%, followed by dyspnea 8.7%, sweating 6.7% vomiting 5.8%, then epigastric pain, nausea and sudden collapse (3.8%,2.9% and 1.9% respectively)

Table 3: Distribution of studied patients according to chest pain among diabetic and non- diabetic group

	ACS patients		P value (≤)
	With chest pain	Without chest pain	
DM (n=24)	15 (62.5%)	9 (37.5%)	0.05
Non-DM (n=80)	79 (98.8%)	1(1.2%)	

Chi-square test *p* value (≤ 0.05) statistically significant

The data on the table showed a higher proportion of Non-DM (80) compared to DM (24) of patients with ACS. In the DM group, 15(62.5%) out of 24 patients reported chest pain, while 9 (37.5%) patients reported no chest pain. In the Non- DM group, 79(98.8%) patients experienced chest pain, and 1(1.2%) out of 80 reported no chest pain. There is statistical significance (*P value* ≤ 0.05).

Table 4: ACS types presentation among studied patients according to sex

SEX	STEMI(n=60)		NSTEMI(n=44)	
Male	No. of patients	Percentage %	No. of patients	Percentage %
	57	95	43	97.7
Female	No. of patients	Percentage %	No. of patients	Percentage %
	3	5	1	2.3

This table represents the distribution of STEMI and NSTEMI patients broken down by sex. The percentage suggest that 97.7% were diagnosed with NTEMI (43 patients) and 95% (57%) were diagnosed with STEMI among male, while 5% had STEMI (3patients) and 2.3% had NSTEMI (1patients) among female. Higher prevalence of NSTEMI with male dominant distribution within studied population. In a study with ECG findings,

the most frequent at 66.7% (40 patients) were with anterior STEMI. 20% (12 patients) were with inferior STEMI and lateral STEMI were found in 13.3(8patients).

Table 5: Troponin parameter with STEMI and NSTEMI in studied patients

		ACS		
		STEMI (n= 60)	NSTEMI (n=44)	P value (≤)
Cardiac Troponin-I (cTn-I)	Raised	18 (30%)	38(86.4%)	0.001
	Markedly raised	42 (70%)	6(13.6%)	

Chi-square test *p* value (≤ 0.05) statistically significant

In this table, a significantly higher proportion of STEMI patients (70%) had markedly raised cardiac Troponin-I (cTn-I) levels compared to NSTEMI patients (13.6%). Conversely, a larger percentage of NSTEMI patients (86.4%) showed raised cTn-I levels compared to STEMI patients (30%). The *P value* ≤ 0.001 a highly statistical significance.

Table 6: Distribution of studied patients according to Left Ventricular Ejection Fraction (LVEF) measurements

LVEF categories	No. of patients	Percentage %
Severe <30%	4	3 8.
Moderate 30-39%	22	212.
Mild 40-49%	37	356.
Normal >55%	41	39 4.

This table represents LVEF measurements and their corresponding classifications: there were 4 patients (3.8 %) with severe EF, 22 patients (21.2 %) with moderate EF,37 patients (35.6%) with mild EF and 41 patients (39.4 %) with normal EF.

Table 7: Distribution of studied patients based on PCI intervention

No. of vessels involved	No. of patients(n=51)	Percentage %
Normal	3	5.9
Single vessel CAD	31	60.8
Double vessel CAD	15	429.
Triple vessel CAD	2	3.9

The provided data in this table shows the distribution of young 51 patients based on their CAD severity and the number of vessels affected determined by PCI intervention. 60.8% (31 patients) had single vessel CAD, while 29.4% (15 patients) had double vessels CAD and a small percentage 3.9 (2 patients had triple vessels CAD. Three patients (5.9%) had normal post PCI intervention

Table 8: Killips classification based on age distribution

Classes	<30 years old(n=24)		>30 years old (n=80)		P value (≤)
	No. of patients	Percentage%	No. of patients	Percentage%	
I	16	66.7	50	62.5	0.001
II	4	16.7	20	25	
III	3	12.5	7	8.7	
IV	1	4.1	3	3.8	

Chi-square test *p* value (≤ 0.05) statistically significant

The Killip classification shows a highly statistically significance (*P value* ≤0.001) in the severity of HF between patients younger and older than 30 years old after a MI. Younger patient (<30) predominantly present with Killip I (66.7%), while older patients (>30) with a small proportion in Killip IV (3.8%)

Table 9: Killip classification in studied patients according to ACS types

	Class I	Class II	Class III	Class IV	P value (≤)
STEMI(n=60)	29(48.3%)	17(28.3%)	10(16.7%)	4(6.7%)	0.01
NSTEMI(n=44)	35(79.5%)	7(16%)	2(4.5%)	0(0%)	

Chi-square test *p* value (≤ 0.05) statistically significant

The provided data shows a comparison of STEMI and NSTEMI patients across different killip classification with high statistical significance indicated by the *P value* ≤ 0.01. STEMI patients had a distribution of 4(6.7%) in Class IV, 10(16.7%) in Class III, 17(28.3%) in Class II, and 29(48.3%) in Class I. NSTEMI patients had a distribution of 0 in Class IV, 2(4.5%) in Class III, 7(16%) in Class II, and 35(79.5%) in Class I.

Discussion:

This observational descriptive cross-sectional study recruited 104 ACS young patients presenting for chest pain in private cardiac unite. This study highlights the prevalence and characteristic of ACS among young as a clinical problem in a population of patients from Yemen. The mean age of our studied patients was 28.8±9 years near most of them male (96.2).

In our study demonstrated several well- established risk factors for CAD including family history, smoking, DM, AHT, chewing habits (Khat and shamma), BMI and dyslipidemia. Smoking, chewing khat and shamma (53.8%, 46.2% and 46.2% respectively) were the prominent higher percentage among young participant with ACS. This result is in line with , a study which reported that, smoking 56(53%), are indeed a strong independent risk factors for AMI. In addition to smoking, the patients of our series had other characteristics related with unhealthy lifestyle habits Kat and Shamma chewing is linked to a higher incidence of AMI [24], as well Rathore et al., reported that smoking is a strong risk factor for acute MI, increased body mass index is directly

related to increased incidence of acute MI, and physical activity may contribute to reducing risk of CAD by 20–30%. In addition to smoking, the patients had other characteristics related with unhealthy lifestyle habits. [25] The American Heart Association, in conjunction with the National Institute of Health, has indeed reported a significant increase in e-cigarette use among adolescents between 2011 and 2020, which is concerning given the potential links between smoking and cardiovascular health risks. This rise in e-cigarette use, particularly among youth, is a public health concern because of the addictive nature of nicotine and the potential harm to the developing cardiovascular and respiratory systems.[26]

In a case-control study, researchers found that several modifiable risk factors, including DM, depression, hypertension, current smoking, low household income, and hypercholesterolemia, collectively accounted for 85% of the risk of AMI in young adults. This study, conducted by US study, focused on young men and women and highlighted the significant impact of these modifiable lifestyle factors on the incidence of AMI. [27]

In this study, chest pain was the most prevalent reported symptom, despite the presence of other symptoms. Specifically, 86.5% of the young participants reported experiencing chest pain.

Similar study highlights the commonality of chest pain in 90 patients (86.5%) as a primary symptom in MI, aligning with findings from study done in Jazan region. [28] and prior studies, including Schulte et al., which show chest pain as a dominant feature in both males and females experiencing MI. [29]

Royal infirmary of edinburgh reported that Chest pain is the most common symptom of acute myocardial infarction (AMI), with approximately 93% of patients experiencing it. It's often described as a heavy pressure or squeezing sensation, a burning feeling, or difficulty breathing, and frequently radiates to the left shoulder, neck, or arm. However, atypical presentations of AMI can mimic non-cardiac pain, requiring careful evaluation of chest pain characteristics to distinguish between the two. [30, 31]

The presented study highlights a significant difference in the prevalence of chest pain between non-diabetic and diabetic patients experiencing MI. Specifically, a larger proportion of non-diabetic patients (98.8%) report chest pain compared to diabetic patients (62.5%). This difference is statistically significant, suggesting that chest pain may present differently in individuals with and without diabetes. This finding consistent across study design by Kumar et al , who confirms the hypothesis that among patients with a diagnosis of MI, those with DM are less likely to have chest pain recorded at presentation compared to those without DM. [32]

In our study focusing on ST-segment elevation myocardial infarction 95% of young patients with a higher significance were found to have the condition, with a greater proportion being male. This means that among the younger patients in the study, a majority were diagnosed with STEMI, and within that group, there was a higher representation of males compared to females. Consistent with a research study on young STEMI patients in Egypt, were they found a high proportion of ST segment elevated cases among young male patients around 44% This is notable because STEMI is often associated with more severe coronary artery blockages and a greater risk of heart damage compared to other forms of ACS. [33] while study at Central hospital of Tianjin reported a significantly lower percentage (12%). This discrepancy highlights a potential difference in the characteristics or risk factors associated with STEMI in young men across different populations or study settings [34]. Study by Anh observed that a 47.5% prevalence of STEMI in the younger patients with ACS compared to the older ones. Data on STEMI prevalence in young ACS patients varied widely in different studies-ranging from 6%–73%, but all of them had in common that the proportion of STEMI in young patients was higher when compared with the group of elderly patients. [35]

In Current study, patients with suspected ACS a combination of clinical features, ECG findings, and cardiac troponin levels, particularly troponin I, are used as biomarker for diagnosis ACS. While cTn -I is crucial for confirming myocardial damage, the ECG serves as a vital, non-invasive tool for initial assessment and can provide early clues about the presence and location of an MI. the study highlights a highly significant markedly raised of troponin 70% With a high proportion 66.7% experiencing anterior segment STEMI. This approach aligns with the Partners HealthCare Institutional study were their results represents 41% of study cohort. [36] An initial very high troponin level with ECG changes in a very young patient should always trigger questions about a myocardial +/- pericardial inflammatory origin rather than focusing solely on vascular causes. However, the exclusion of an acute coronary event remains an important part of practice in patients presenting in this manner. [37]

In our study,39.4% of participant had a normal LVEF, which aligns with Esteban et al.'s finding of a small proportion (7.6%) with reduced EF in their young ACS cohort aged less than 39. [38] However, this contrasts with Anh et al.'s findings, where 33.3% of young patients under 40 had reduced LV EF, indicating a potential inconsistency in the prevalence of reduced LV EF among young

ACS patients. Further reported ACS can cause a reduced LVEF in young patients, though this is less common than

in older adults. While young patients with ACS may experience reduced LV EF, the overall incidence and severity might be lower compared to older individuals. However, even mildly reduced LVEF in the acute phase can be associated with increased long-term mortality in ACS patients. [39]

our group of young patients, only 51 patients were eligible for PCI intervention, the majority of these patients (60.8%) had single -vessel CAD, double and triple vessels CAD was seen in 29.4% and 5.9% patients, respectively. From the USA analyzed angiographic features in 35 patients who were <35 years of age (1.5% of the total number catheterized). In the study by [40]. Another study found Left main or triple vessel CAD was seen in 15%. One- and two-vessel CAD was seen in 32.5% and 19% patients, respectively. [37] An analysis of PCI (largely elective) cohort registry of Malaysia from 2007-2009, young patients< 45 male < 55 years female), constituted 15.5% of total patients who underwent PCI, and among them, 54% had SVD, 0.8% had LMCA disease. [41]

In current study, while most experience no complication, HF was dominated (23.1%) affecting young patient with ACS. This finding underscores the clinical significance of the Killip classification in assessing the risk of complications and mortality associated with HF in the context of acute coronary syndromes. this result related to the complication and outcome among young patients with ACS were concordant with the published literature, conducted a study in Iran, where they evaluated 282 patients with documented MI and for assessing mortality complication and outcome of ACS among young patients. Their results showed that the Killip classification played a relevant prognostic role in mortality at a mean follow-up of five years post-MI. Mortality in our study was of 7.7%. [42] This rate is bringing in the range of the Marie et al (6.1%). There are conflicting evidence and unconvincing explanations regarding the effect of outcome on mortality following ACS. Generally, unadjusted comparisons of mortality after ACS have shown that women have worse outcomes than men do. [43]

In the present study younger patients (61.5%) were significantly to have Killip classification as killip class 1, both younger aged less than 30 years (66.7%) and older above 30 years (62.5%) were in class I, which were concordant with result of study in Egypt and Switzerlandin were they found that (81.4, 95% respectively) of their patients presented with killip class I, [44, 45] while Manfrini et al who found that, frequency of killip class > II ranging between (15-23%). [46] High Killip classes were defined in 22% of patients. In comparison to Killip Class I, patients with higher Killip class had greater prevalence of cardiovascular risk factors, presented late, were less likely to have angina, and were less likely to receive antiplatelet, statins, and β-blockers. Classes II, III, and IV were associated with higher adjusted odds of death in ST-elevation myocardial infarction, reported by a study enrolled in the Gulf Registry of Acute Coronary Events. [47]

In current study the likely compared between those patients with and without ST-segment elevation focusing on the proportion within Killip class I, indicating no heart failure, to assess short-term outcomes we reported a significant difference between NSTEMI (49.5%) and STEMI (48.3%). The near-identical percentages reported by Rossello et al (41.3% for NSTEMI and 44.7.3% for STEMI) within this class suggest comparable short-term prognosis. The study also found a non-significant difference in all-cause in-hospital mortality between the two groups (20.0% for STEMI vs.17.1% for NSTEMI) despite a trend towards higher mortality in STEMI, according to a report on the Japan AMI Registry. [48] Previous studies have shown wide regional variations in patient features, hospital care, coronary reperfusion (or revascularization) rates and post-discharge mortality among patients hospitalized for either STEMI or NSTEMI. Although regional differences in short-term outcomes between STEMI and NSTEMI seem to attenuate over time, there is yet an urgent need to keep improving cardiovascular outcomes. [49]

Limitations of the Study:

Our study done in low income country did not have sufficient data regarding ACS prevalence among young patients before. The sample size was relatively small and may not be representative. The cross- sectional design (preluding causality) , potential for selection bias, the lack of control group and the absence of long term follow-up data. This study also was a single-center designed study and further comparative multicenter studies will be needed.

Conclusion:

Our study concluded that the prevalence among young male patients (96.2%), male. Sm poking, Kat and shamma chewing presumed risk factors. Moreover, there are many risk factors, including diseases. Killip class I and elevated ST segment quite common among male. The cross -sectional design prevents the establishment of causality. propose direction for further research, such as longitudinal cohort studies or case -control studies. Further research is needed to fully understand the reasons increase incidence of ACS among young adults for the optimal management strategies.

Conflict of Interest:

The author declares that he has no competing interests.

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مقالة بحثية

الخصائص السريرية وتطور متلازمة الشريان التاجي الحادة لدى المرضى الشباب- عدن -اليمن 2025-2024

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المُلخّص

يشهد انتشار متلازمة الشريان التاجي الحادة ارتفاعًا ملحوظًا بين الشباب حول العالم. ورغم أنها أقل شيوعًا من كبار السن، إلا أنها حالة خطيرة تتميز بعوامل خطر وأعراض فريدة. ويرتبط ذلك بتزايد انتشار عوامل الخطر القلبية الوعائية التقليدية بين الشباب، مثل داء السكري من النوع الثاني، وارتفاع ضغط الدم، والسمنة، وفرط شحميات الدم، مما أدى إلى زيادة الإصابة بمرض الشريان التاجي التصلبي. بالإضافة إلى ذلك، تشير الأبحاث الحديثة إلى تأثير عوامل خطر أقل شيوعًا، بما في ذلك الالتهاب المزمن، وأمراض المناعة الذاتية، وتعاطي المخدرات، والعوامل النفسية والاجتماعية، والمؤشرات الحيوية الجديدة، في الظهور المبكر لمرض الشريان التاجي. تساهم هذه العوامل مجتمعة في زيادة الإصابة المبكرة بمرض الشريان التاجي، مما يُبرز الحاجة إلى تحسين استراتيجيات الوقاية وجهود الصحة العامة التي تركز على الشباب. هدف الدراسة: تهدف الدراسة إلى تقييم خصائص ونتائج متلازمة الشريان التاجي الحادة لدى المرضى الشباب. أجريت دراسة وصفية مقطعية على مستوى المستشفى على 104 مريض تم تشخيصهم وعلاجهم بمتلازمة الشريان التاجي الحادة في وحدات القلب الخاصة بمستشفى عدن ألمانيا في الفترة ما بين أبريل 2024 ويناير 2025 وتمت دراستهم بالإشارة إلى الملف السريري وتحليل عوامل الخطر بناءً على المؤشرات الحيوية لإنزيمات القلب والتقييمات القلبية الغازية وغير الغازية. كان متوسط العمر (± الانحراف المعياري) 28.8 ± 09 سنة، وكان 100 مريض (96.2%) من الذكور، و4 (3.8%) من الإناث. وكان التدخين مع 56 (53.8%) و48 (46.2%) مع عوامل خطر مضغ القات والشمة. وكانت نسبة عالية من المرضى 86.5% يعانون من ألم في الصدر، وكانت الغالبية العظمى منهم غير مصابين بالسكري (98.8%). وكان 43 من احتشاء عضلة القلب مرتفع في القطعة وكان معظمهم من الذكور (95%). وكان مستوى التروبونين المرتفع ذا أهمية كبيرة (0.001). وكان لدى معظم المرضى كسر قذف خفيف في البطين الأيسر وتأثر وعاء تاجي واحد (35.6% و60.8% على التوالي). يُمثل مرضى الفئة الأولى من تصنيف كيليب الأغلبية (61.5%)، مع نسبة دلالة إحصائية (66.7%) ممن تقل أعمارهم عن 30 عامًا، ولديهم قطعة غير مرتفعة (79.5%). كانت غالبية المرضى من الذكور. يُفترض أن التدخين ومضغ القات والشمّا من عوامل الخطر. يُعدّ كل من الفئة الأولى من تصنيف كيليب وقطعة غير المرتفعة شائعين جدًا.

الكلمات المفتاحية: متلازمة الشريان التاجي الحادة؛ عوامل الخطر؛ التشخيص؛ السن المبكره.

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