Clinical Survey of Patients Undergoing Coronary Catheterization in Nasr City Health Insurance Hospital

Abstract

Background: Cardiovascular Disease is the leading cause of death worldwide. The prevalence of coronary artery disease in developing countries is approximately 11%. This study aimed to assess demographic characteristics, cardiovascular risk factors, coronary catheterization findings, and management strategies at Nasr City Health Insurance Hospital.

Methods: This observational cross-sectional single-center study included 500 patients undergoing coronary catheterization. All patients underwent 12-lead electrocardiography, echocardiography.

Results: Significant gender- and age-related differences were identified. Females were older and had higher BMI, with greater prevalence of diabetes, hypertension, obesity, and dyslipidemia ($P < 0.05$), whereas smoking was more common among males. Females more frequently presented with dyspnea and had lower hemoglobin, TLC, and platelet counts. Males showed more severe cardiac findings, including lower ejection fraction, higher regional wall motion abnormalities, and more extensive coronary disease with greater multivessel involvement, left main disease, chronic total occlusion, and complex lesions ($P < 0.05–0.001$). Advancing age was associated with increased hypertension, structural cardiac abnormalities, valvular disease, diastolic dysfunction, and more extensive coronary involvement, particularly multivessel disease ($P < 0.05–0.001$).

Conclusions: Patients undergoing coronary catheterization had a high burden of cardiovascular risk factors and predominantly multivessel coronary disease. Disease severity was greater among males and older patients, while PCI was performed safely.

Keywords: Coronary Catheterization, Coronary Angiography, Cardiovascular Disease

Introduction:

Coronary artery disease (CAD) remains the leading cause of morbidity and mortality worldwide, representing a major public health burden in both developed and developing countries. In Egypt, cardiovascular disease accounts for a substantial proportion of total mortality, reflecting the high prevalence of modifiable risk factors such as diabetes mellitus, hypertension, dyslipidemia, obesity, and smoking [1].

Diagnostic coronary catheterization (coronary angiography) is considered the gold standard for the evaluation of coronary artery disease, as it provides accurate anatomical assessment of coronary lesions and helps guide further management strategies, including medical therapy, percutaneous coronary intervention (PCI), or surgical revascularization. Although non-invasive modalities such as stress testing and CT coronary angiography are widely used for initial assessment, invasive coronary angiography remains essential in patients with suspected significant ischemic heart disease or high-risk clinical features [2].

The clinical profile and angiographic patterns of patients undergoing coronary catheterization vary according to age, sex, and associated cardiovascular risk factors. Understanding these variations is important for optimizing patient selection, improving risk stratification, and guiding management decisions in routine clinical practice [3].

Despite the growing use of coronary angiography in Egypt, there is limited local data describing the demographic characteristics, cardiovascular risk profile, angiographic findings, and management strategies among patients undergoing this procedure in tertiary care hospitals [4].

The aim was to evaluate the burden of demographic data, risk factors, results of coronary catherization and strategy of management in Nasr City Health Insurance Hospital.

Patients and Methods:

This observational, cross sectional, single canter study was performed on 500 cases undergoing coronary catheterization at Nasr City Hospital from May 2024 to May 2025.

Written informed consent was obtained from all patients. This study was conducted at Nasr City Hospital, Cairo, Egypt. Approval code: MS 45-5-2024.

Inclusion criteria were adult cases aged 18 years and above, cases scheduled for coronary catheterization (diagnostic or interventional), and cases who can provide informed consent. Exclusion criteria were patients who are critically ill and unable to participate, patients with previous coronary artery bypass graft (CABG) surgery, and cases with incomplete medical records.

All subjects underwent full history taking, clinical examination, Twelve leads Electrocardiography (ECG), Echocardiography .

All laboratory parameters (WBCs, platelet count, creatinine, and other biochemical tests) were measured at admission as part of the baseline pre-catheterization assessment, prior to the coronary angiography or any interventional procedure.

Comprehensive transthoracic echocardiography was performed by a Philips Epic 7C machine with an S5-1 (5.5 MHz) transducer and simultaneous ECG monitoring, with cases examined in the left lateral decubitus position. Left ventricular ejection fraction (EF) was assessed using the modified Simpson's biplane method from apical two- and four-chamber views by calculating end-diastolic (EDV) and end-systolic volumes (ESV), with EF derived as [(EDV − ESV)/EDV] × 100 [5]. Diastolic dysfunction was evaluated and graded into three stages based on established criteria: grade I (E/A <0.8, DT >200 ms, E/e′ ≤8), grade II (E/A 0.8–1.5, DT 160–200 ms, E/e′ 9–12), and grade III (E/A ≥2, DT <160 ms, E/e′ ≥13) [6]. Segmental wall motion abnormalities (SWMA) were identified by the presence of akinesia or moderate-to-severe hypokinesia in at least two adjacent

Coronary angiography was performed via femoral or radial access to assess vessel lesions or total occlusion, number of affected vessels (single, double, or multivessel disease, including left main involvement), as well as the presence of ectasia, slow flow, myocardial bridging, and

lesion type (simple or bifurcation). Coronary segments with ≥50% stenosis or occlusion were analyzed using quantitative coronary angiography (QCA) in two orthogonal views, while segments distal to total occlusion were excluded. All other segments were classified as normal, atherosclerotic (<50% stenosis), stenotic (≥50% stenosis), or absent. Myocardial perfusion stress imaging was also performed. Vascular access was obtained under aseptic conditions using either the femoral approach (sheath insertion into the femoral artery with catheter advancement through the aorta to the coronary arteries) or the radial approach (sheath insertion into the radial artery at the wrist with catheter advancement through the brachial artery to the coronary arteries) following local anesthesia.

Statistical analysis

Data management and statistical analysis were performed by SPSS version 28 (IBM, Armonk, New York, United States). Quantitative data were evaluated for normality using the Kolmogorov–Smirnov test, Shapiro Wilk test, and direct data visualization methods. Quantitative data were expressed as means and standard deviations, while categorical data were reported as numbers and percentages. Quantitative data were compared according to gender using the independent t-test and according to age groups using the one-way ANOVA test. Post-hoc analysis was done in case of significant overall effect, and all post-hoc analyses were Bonferroni adjusted. Categorical data were compared using the Chi-square or Fisher's exact test. All statistical tests were two-sided. P values less than 0.05 were regarded as significant.

Results:

Among the 500 patients, 62.4% underwent percutaneous coronary intervention (PCI), 9.6% were referred for CABG, and 28.0% were managed medically. Drug-eluting stents were used in 100.0% of PCI cases. In-hospital complications occurred in 4.8% of patients, including access site hematoma (2.4%), contrast-induced nephropathy (1.2%), and major adverse events

(1.2%). The mean hospital stay was 3.8 ± 1.6 days. The mean SYNTAX score among patients with multivessel disease was 18.6 ± 7.4. **Table 1**

Table 1: Management strategy and in-hospital outcomes

	N = 500
Management	
Medical management only	140 (28.0%)
PCI performed	312 (62.4%)
Drug-eluting stent (DES)	500 (100.0%)
CABG referral	48 (9.6%)
In-hospital complications	
Access site hematoma	12 (2.4%)
Contrast-induced nephropathy	6 (1.2%)
Stroke/MI/death	6 (1.2%)
Hospital stays (days)	3.8 ± 1.6
SYNTAX score (multivessel disease only)	18.6 ± 7.4

Data reporeted as mean ± SD or number (%), PCI: Percutaneous coronary intervention; CABG: Coronary artery bypass grafting; MI: Myocardial infarction; SD: Standard deviation; SYNTAX: Synergy Between Percutaneous Coronary Intervention with Taxus and Cardiac Surgery.

Marked gender differences were observed. Females were older, shorter, and had higher BMI, with greater prevalence of diabetes, hypertension, obesity, and dyslipidemia, whereas smoking was predominantly in males; other baseline variables were comparable. Females had less typical chest pain but more dyspnea, and lower hemoglobin, TLC, and platelet counts, with no significant differences in vital signs, renal function, or lipid profile. **Table 2**

Table 2: Baseline characteristics and clinical data according to gender

	Total	**Males (n = 342)**	**Females (n = 158)**	**P-value**
Age (years)	59.4 ± 10.1	58.1 ± 10.2	62.3 ± 9.8	0.001*
Weight (kg)	83 ± 7	84 ± 7	81 ± 6	0.112
Height (cm)	171 ± 6	173 ± 6	165 ± 5	<0.001*
BMI (kg/m²)	28.9 ± 3.2	28.3 ± 2.9	30.1 ± 3.1	<0.001*
FH-IHD	91 (18.2%)	64 (18.7%)	27 (17.1%)	0.662
Diabetes	211 (42.2%)	128 (37.4%)	83 (52.5%)	<0.001*
Hypertension	312 (62.4%)	197 (57.6%)	115 (71.8%)	<0.001*
Obesity	128 (25.6%)	65 (19.0%)	63 (39.9%)	<0.001*
Dyslipidemia	293 (58.6%)	191 (55.8%)	102 (64.6%)	0.014*
CVS	3 (0.6%)	2 (0.6%)	1 (0.6%)	1.000
Smoking	184 (36.8%)	182 (53.2%)	2 (1.9%)	<0.001*
Prior CAD	97 (19.4%)	68 (19.9%)	29 (18.4%)	0.687
Prior PCI	68 (13.6%)	48 (14.0%)	20 (12.7%)	0.679
Heart rate (bpm)	75 ± 9	75 ± 9	76 ± 8	0.512

Systolic BP (mmHg)	128 ± 14	128 ± 14	129 ± 13	0.284
Diastolic BP (mmHg)	79 ± 10	79 ± 10	80 ± 9	0.231
Typical chest pain	458 (91.6%)	320 (93.6%)	138 (87.3%)	0.011*
Shortness of breath	107 (21.4%)	61 (17.8%)	46 (29.1%)	<0.001*
Hemoglobin (g/dL)	13.0 ± 1.5	13.5 ± 1.4	11.9 ± 1.1	<0.001*
TLC (×10³/µL)	7.0 ± 1.8	7.1 ± 1.8	6.7 ± 1.6	0.016*
Platelets (×10³/µL)	278 ± 65	284 ± 67	265 ± 58	0.021*
Creatinine (mg/dL)	0.92 ± 0.51	0.95 ± 0.55	0.85 ± 0.20	0.058
Urea (mg/dL)	27 ± 11	27 ± 11	26 ± 9	0.612
INR	1.0 ± 0.1	1.0 ± 0.1	1.0 ± 0.1	0.825
Total cholesterol (mg/dL)	192 ± 28	192 ± 29	193 ± 27	0.795
LDL-C (mg/dL)	148 ± 38	148 ± 39	149 ± 36	0.754
HDL-C (mg/dL)	39 ± 8	39 ± 8	39 ± 7	0.953
Triglycerides (mg/dL)	168 ± 42	167 ± 43	171 ± 40	0.134

Data reported as mean ± SD or number (%), *: Significant, , BMI: Body Mass Index; FH-IHD: Family History of Ischemic Heart Disease;CVS: Cerebrovascular stroke; CAD: Coronary artery disease; PCI: Percutaneous coronary intervention; BP: Blood pressure; TLC: Total Leukocyte Count; INR: International Normalized Ratio; LDL-C: Low-density Lipoprotein Cholesterol; HDL-C: High-density Lipoprotein Cholesterol,

Echocardiographically, males showed slightly lower EF, a higher rate of reduced EF, more frequent SWMA, and more grade I diastolic dysfunction. Angiographically, males had more significant lesions and more extensive disease (higher double- and multivessel involvement), with greater prevalence of left main disease, CTO, ectasia, and both simple and bifurcation lesions, while females more often had non-significant lesions and single-vessel disease; slow flow and myocardial bridging were similar between groups. **Table 3**

Table 3: Echocardiography and Coronary angiography findings according to gender

	Total	**Males (n = 342)**	**Females (n = 158)**	**P-value**
Echocardiography				
EF (%)	56 ± 10	55 ± 10	58 ± 9	0.021*
EF category				0.034*
(EF≥50%)	358 (71.6%)	236 (69.0%)	122 (77.2%)	
(EF<50%)	142 (28.4%)	106 (31.0%)	36 (22.8%)	
SWMA	292 (58.4%)	227 (66.4%)	65 (41.1%)	<0.001*
Any valve affection	53 (10.6%)	31 (9.1%)	22 (13.9%)	0.108
Diastolic dysfunction				0.034*
Grade I	234 (46.8%)	168 (49.1%)	66 (41.8%)	
Grade II	41 (8.2%)	28 (8.2%)	13 (8.2%)	
Grade III	10 (2.0%)	0 (0%)	10 (6.3%)	
Coronary angiography findings				
Type of lesion				<0.001*
Non-significant lesion	90 (18.0%)	50 (14.6%)	40 (25.3%)	
Significant lesion	312 (62.4%)	236 (69.0%)	76 (48.1%)	

Number of vessels affected				<0.001*
Single vessel disease	58 (11.6%)	34 (9.9%)	24 (15.2%)	
Double vessel disease	84 (16.8%)	65 (19.0%)	19 (12.0%)	
Multiple vessel disease	243 (48.6%)	192 (56.1%)	52 (32.9%)	
Left main affection	46 (9.2%)	40 (11.7%)	6 (3.8%)	<0.001*
Chronic total occlusion (CTO)	92 (18.4%)	77 (22.5%)	15 (9.5%)	<0.001*
Slow flow	23 (4.6%)	16 (4.7%)	7 (4.4%)	0.839
Ectasia	89 (17.8%)	69 (20.2%)	20 (12.7%)	<0.001*
Myocardial bridge	8 (1.6%)	6 (1.8%)	2 (1.3%)	0.562
Simple lesion	276 (55.2%)	207 (60.5%)	69 (43.7%)	<0.001*
Bifurcation lesion	56 (11.2%)	45 (13.2%)	8 (5.1%)	<0.001*

Data reported as mean ± SD or number (%), *: Significant, EF: Ejection Fraction; SD: Standard Deviation; SWMA: Segmental Wall Motion Abnormalities.

Age-related differences were evident. Patients >60 years had the lowest weight, while BMI peaked in the 41–60 group. FH-IHD and dyslipidemia decreased with age, whereas hypertension increased; obesity was highest in the 41–60 group. Heart rate declined with age, while systolic and diastolic blood pressures were highest in the 41–60 group. Older patients had lower hemoglobin, platelet counts, LDL-C, and triglycerides, with no differences in other parameters. **Table 4**

Table 4: Baseline characteristics and clinical data according to age groups

	≤40 yrs (n = 12)	**41–60 yrs (n = 248)**	**>60 yrs (n = 240)**	**P-value**
Gender				0.812
Males	8 (66.7%)	168 (67.7%)	166 (69.2%)	
Females	4 (33.3%)	80 (32.3%)	74 (30.8%)	
Weight (kg)	86 ± 5[1]	84 ± 6[2]	80 ± 6[1,2]	<0.001*
Height (cm)	173 ± 5	171 ± 6	170 ± 7	0.112
BMI (kg/m²)	28.8 ± 3.0	29.2 ± 3.1[3]	28.1 ± 2.9[2]	<0.001*
FH-IHD	8 (66.7%)	55 (22.1%)	28 (3.3%)	<0.001*
Diabetes	4 (33.3%)	106 (42.7%)	101 (42.1%)	0.812
Hypertension	3 (25.0%)	135 (54.4%)	174 (72.5%)	0.003*
Obesity	3 (25.0%)	71 (28.6%)[3]	54 (22.5%)[2]	0.001*
Dyslipidemia	10 (83.3%)	155 (62.5%)	128 (53.3%)	0.003*
CVS	0 (0%)	2 (0.8%)	1 (0.4%)	0.812
Smoking	6 (50.0%)	98 (39.5%)	80 (33.3%)	0.112
Heart rate (bpm)	79 ± 5[3]	76 ± 9[3]	72 ± 8[1,2]	<0.001*
Systolic BP (mmHg)	125 ± 12	130 ± 13[3]	126 ± 14[2]	0.003*
Diastolic BP (mmHg)	78 ± 8	81 ± 9[3]	77 ± 11[2]	0.008*
Typical chest pain	11 (91.7%)	229 (92.3%)	218 (90.8%)	0.812
Shortness of breath	2 (16.7%)	52 (21.0%)	53 (22.1%)	0.812

Hemoglobin (g/dL)	13.2 ± 1.3	13.1 ± 1.4[3]	12.7 ± 1.5[2]	0.005*
TLC (×10³/µL)	6.9 ± 1.7	7.1 ± 1.8	6.8 ± 1.7	0.112
Platelets (×10³/µL)	308 ± 58[3]	295 ± 54[3]	265 ± 67[1,2]	<0.001*
Creatinine (mg/dL)	0.88 ± 0.19	0.93 ± 0.55	0.91 ± 0.48	0.812
Urea (mg/dL)	24 ± 8	28 ± 12	27 ± 10	0.112
INR	1.0 ± 0.1	1.0 ± 0.1	1.0 ± 0.1	0.812
Total cholesterol (mg/dL)	198 ± 25	193 ± 29	190 ± 28	0.112
LDL-C (mg/dL)	165 ± 28[2,3]	149 ± 38[1]	143 ± 37[1]	0.003*
HDL-C (mg/dL)	38 ± 6	39 ± 8	39 ± 8	0.812
Triglycerides (mg/dL)	183 ± 35[3]	172 ± 42[3]	160 ± 40[1,2]	0.003*

Data reported as mean ± SD, [1]: Significantly different from ≤40 age group; [2]: significantly different from 41-60 age group; [3]: significantly different from >60 age group.

Regarding Echocardiographic parameter, SWMA, valvular affection, and diastolic dysfunction (particularly grade I) increased with age, and grade III dysfunction appeared only in >60 years, while EF showed no significant difference. Angiographically, significant lesions and multivessel disease increased with age, being highest in >60 years, while younger patients more often had no or less severe disease. Left main disease and CTO also showed a modest increase with age, whereas other angiographic features were comparable across groups.

Table 5: Echocardiography and coronary angiography findings according to age groups

	≤40 yrs (n = 12)	**41–60 yrs (n = 248)**	**>60 yrs (n = 240)**	**P-value**
Echocardiography				
EF (%)	60 ± 5	56 ± 10	55 ± 11	0.112
EF category				0.112
(EF≥50%)	10 (83.3%)	179 (72.2%)	169 (70.4%)	
(EF<50%)	2 (16.7%)	69 (27.8%)	71 (29.6%)	
SWMA	4 (33.3%)	145 (58.5%)	154 (64.2%)	0.05*
Any valve affection	0 (0%)	21 (8.5%)	32 (13.3%)	0.038*
Diastolic dysfunction				0.007*
Grade I	2 (16.7%)	109 (44.0%)	123 (51.2%)	
Grade II	2 (16.7%)	18 (7.3%)	21 (8.8%)	
Grade III	0 (0%)	0 (0%)	6 (2.5%)	
Coronary angiography findings				
Type of lesion				0.021*
Non-significant lesion	2 (16.7%)	42 (16.9%)	46 (19.2%)	
Significant lesion	4 (33.3%)	150 (60.5%)	158 (65.8%)	
Number of affected vessels				0.018*
Single vessel disease	2 (16.7%)	28 (11.3%)	28 (11.7%)	
Double vessel disease	2 (16.7%)	42 (16.9%)	40 (16.7%)	
Multiple vessel disease	4 (33.3%)	118 (47.6%)	130 (54.2%)	
Left main affection	1 (8.3%)	21 (8.5%)	25 (10.4%)	0.05*
Chronic total occlusion	2 (16.7%)	44 (17.7%)	48 (20.0%)	0.05*

Slow flow	1 (8.3%)	11 (4.4%)	11 (4.6%)	0.812
Ectasia	2 (16.7%)	44 (17.7%)	43 (17.9%)	0.812
Myocardial bridge	0 (0%)	4 (1.6%)	4 (1.7%)	0.812
Simple lesion	4 (33.3%)	136 (54.8%)	136 (56.7%)	0.112
Bifurcation lesion	1 (8.3%)	28 (11.3%)	27 (11.3%)	0.812

Data reported as mean ± SD, SD: Standard Deviation; SWMA: Segmental Wall Motion Abnormalities; BMI: Body Mass Index; FH-IHD: Family History of Ischemic Heart Disease; CVS: Cerebrovascular stroke, BP: Blood pressure; TLC: Total Leukocyte Count; INR: International Normalized Ratio; LDL-C: Low-density Lipoprotein Cholesterol; HDL-C: High-density Lipoprotein Cholesterol, EF: Ejection Fraction.

Discussion

In the current study, out of the total cases analyzed, 98 (19.6%) showed no lesions. Non-significant lesions were identified in 90 cases (18.0%). Most of the lesions were classified as significant, accounting for 312 cases (62.4%). Among the types of CAD, multiple vessel disease was prevalent (48.6%), followed by double vessel disease (16.8%) and single vessel disease (11.6%). Notably, ectasia was observed in 17.8% of patients, while other less common findings included left main affection (9.2%), chronic total occlusion (18.4%), slow flow (4.6%), myocardial bridge (1.6%), and bifurcation lesions (11.2%). Femoral access was used in 72.4% and radial access in 27.6%.

Mafi et al., [7] also found that femoral access was employed more frequently than radial access in consecutive cases with STEMI who were admitted to the catheterization center, which is consistent with our findings.

Drug-eluting stents were used in 100.0% of PCI cases. In-hospital complications occurred in 4.8% of patients, including access site hematoma (2.4%), contrast-induced nephropathy (1.2%), and major adverse events (1.2%). The mean hospital stay was 3.8 ± 1.6 days. The mean SYNTAX score among patients with multivessel disease was 18.6 ± 7.4.

This was align with the outcomes of Andishmand et al., [8] who documented that bleeding-related in-hospital complications occurred in 143 cases (10.4%). The most prevalent complications were inguinal hematoma (8.4%), significant bleeding (1.6%), and mortality (0.6%) following coronary angiography and PCI

In the present study, females were older and exhibited significantly higher mean BMI values compared to males. Moreover, the prevalence of diabetes and hypertension was markedly higher in females. Dyslipidemia and obesity were also more prevalent in females.

This was corroborated by Sayed., [9] who illustrated that males are more likely to present with CAD at a younger mean age than females.

In this study, females reported a significantly lower prevalence of typical chest pain than males. Conversely, shortness of breath was more prevalent among females than males. Hemoglobin levels were significantly lower in females than males. Furthermore, females exhibited lower mean platelet counts compared to males. Creatinine levels showed a trend towards significance, with females demonstrating slightly lower levels compared to males. However, other parameters, including heart rate, blood pressure, urea, INR, total cholesterol, LDL-C, HDL-C, and triglycerides exhibited no significant gender differences.

Sharma et al., [10] corroborated this by noting that women experienced a reduced incidence of typical pain than males.

According to our results, the EF demonstrated a slightly lower mean value in males compared to females, while substantial differences were observed in the prevalence of SWMA. Notably, a significantly higher proportion of males exhibited SWMA than females. Diastolic dysfunction revealed a significantly higher prevalence of GI in males in comparison to females. However, insignificant differences were observed regarding other parameters.

Ferreira et al., [11] discovered an elevated prevalence of diastolic dysfunction in females who underwent elective cardiac surgery than among males, which lends credence to these findings.

In the current study, the distribution of lesion types between males and females was statistically significant. Number of vessels affected differed significantly according to gender, with single vessel disease being higher in females compared to males. Conversely, double vessel disease, and multiple vessel disease were higher in males compared to females. Left main affection,

ectasia, simple lesion, bifurcation lesion, and CTO were also significantly more prevalent in males than females. However, slow flow and myocardial bridge did not show significant differences between the genders.

This was in accordance with the outcome of Ebaid et al., [12] who stated that males had higher rates of significant lesions, multi-vessel disease, and left main artery involvement.

Our findings demonstrated that individuals over 60 had the lowest mean weight. Moreover, the mean BMI was significantly higher in the 41-60 age group. FH-IHD exhibited a decreasing trend with age, with the lowest prevalence observed in participants over 60 years. Additionally, the prevalence of hypertension increased with age, with the highest rates observed in individuals over 60 years. Conversely, dyslipidemia prevalence decreased with age, with highest rates in individuals ≤40. Moreover, the prevalence of obesity was highest in the 41-60 age group (28.6%), followed by the ≤40 age group (25.0%) and the over 60 age group.

Khan et al., [13] discovered that the age group 51–60 years accounted for the majority of cases (25%) in this regard. In CAD patients, 60.6% of cases were classified as normal BMI, while 39.4% were classified as abnormal BMI.

In the present study, heart rate decreased with age, with individuals over 60 years having the lowest mean heart rate compared to the other two groups. Systolic blood pressure demonstrated a significant difference across age groups, with the highest mean observed in individuals aged 41-60 years. Similarly, diastolic blood pressure exhibited significant differences, with the highest mean observed in the 41-60 age group.

Jadhav et al., [14] reported that cases with hypertension with elevated sympathetic overactivity or stress are most commonly aged 41-60 years. This was consistent with their findings.

The current findings illustrated that hemoglobin levels were significantly lower in individuals over 60 years compared to the other two groups. Platelet counts were significantly elevated in the younger age groups in comparison to those over 60 years. Similarly, LDL-c levels were

decreased in the older age cases. Triglyceride levels followed a similar trend, with significantly lower levels found in individuals over 60 years. Other parameters did not show significant differences across age groups.

This was supported by Feng et al., [15] who revealed that TG, TC, and LDL-C levels increase up to middle age and then decrease.

In this study, significant differences in SWMA were evident, with an elevated incidence in individuals over 60 years in comparison to younger age groups (P = 0.05). Valve affection significantly increased with age, with the highest prevalence observed in individuals over 60 years compared to younger groups. Diastolic dysfunction, particularly GI, exhibited a notable increase with age, with the highest prevalence observed in cases over 60 years compared to younger groups (P = 0.007). Grade III diastolic dysfunction was observed only in patients over 60 years (2.5%). Insignificant differences were observed regarding all other parameters.

Rostagno, [16] observed that the incidence of cardiac valve disease increases considerably with age, which is consistent with these findings.

According to our results, in the ≤40 age group, 50.0% of participants had no lesions, 16.7% had non-significant lesions, and 33.3% had significant lesions. Among those aged 41-60 years, 22.6% of participants had no lesions, 16.9% had non-significant lesions, and 60.5% had significant lesions. In the >60 age group, 15.0% participants had no lesions, 19.2% had non-significant lesions, and 65.8% had significant lesions. The difference was statistically significant. Multiple vessel disease was more common in older patients (P = 0.018). Left main affection increased with age (P = 0.05). Chronic total occlusion also increased with age (P = 0.05). Other parameters did not exhibit statistically significant differences among the age cases. This was in align with Bhatnagar et al., [17] who stated that obstructive left main disease is more commonly associated with increasing age.

This study was limited by its relatively limited sample size, single center design, Lack of long-term follow-up duration, and its cross-sectional nature.

Conclusions:

Patients undergoing coronary catheterization exhibited a high burden of cardiovascular risk factors, with most presenting with typical angina and significant, predominantly multivessel coronary artery disease. PCI was the main treatment with low complication rates, while males and older patients demonstrated more severe disease profiles.

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Conflict of Interest: Nil

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