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Research Article ***Pharmacy Practice***

A prospective observational study based on angiographic profile in coronary artery disease patients with coronary intervention

Dr. Syeda Zaineb Kubra Hussaini*[1], Dr. Prakash Ajmera[2], Mr. Giridhar Gunnala[3], Peddapalegani Palavardhan[4], Mariya Zoha Muskan[5], Megha Mohan Narayanan[5], P. Jhansi[5], Papishetti Nikhila[5]

[1]Department of Pharmacy Practice, Malla Reddy Pharmacy College, Hyderabad, Telangana, India.
[2] MD,DNB Cardiology, Cardiologist, Malla Reddy Narayana Multispecialty Hospital, Hyderabad, Telangana, India.
[3]MSC Biotechnology, Senior Cardiovascular Technologist, Malla Reddy Narayana Multispecialty Hospital, Hyderabad, Telangana, India.
[4] Ph.D., Research Scholar, Department of Statistics, Sri Venkateshwara University, Tirupati, Andhra Pradesh, India
[5]Pharm.D (Doctor of Pharmacy), Malla Reddy Pharmacy College, Hyderabad, Telangana, India.

***Corresponding Author: Syeda Zaineb Kubra Hussaini**
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ABSTRACT

Background: An enlargement of the coronary artery that restricts optimal blood flow to the heart tissue is called coronary artery disease. The most common cause is arteriosclerosis. Platelet aggregation inhibition is the mainstay of primary and secondary prevention of ischemic events associated with coronary artery atherosclerosis.

Objective: Study of the angiographic profile of patients with coronary artery disease undergoing percutaneous coronary intervention, coronary artery bypass graft and medical management.

Methods: This prospective observational study included all patients who underwent PCI, CABG and medical treatment at a tertiary hospital between August 2021 and February 2022. Demographic and angiographic data were collected for all patients. The details of the procedure, clinical symptoms, comorbidities, diagnostic tests such as coronary angiography, 2D echocardiography, and treatment, including anticoagulant therapy, of these patients were reviewed.

Results and discussion: A total of 100 patients (mean age - 58 years) with 71% males and 29% females were included in the study. Hypertension and Diabetes were the most common risk factors, present in 60% and 35% patients respectively. Smokers were observed in 16% patients respectively. Single vessel disease (SVD) was most common angiographic pattern, observed in 57% patients. Anterior wall MI was the most common mode of presentation (75%). Chest Pain was most common symptom, observed in 95% patients; PTCA was the most frequently employed procedure (71%) followed by CABG (10%) and Medical Management (19%); and Among 100 patients in 2DEcho Mild LV Dysfunction (Grade-1) were most prevalent (32%). The most commonly affected vessel was the right coronary artery (RCA) (51%). Drug-eluting stents were used in 71% of cases. Out of 100 patients, 51 patients received 1 stent and 20 patients received 2 stents.

Conclusion: This prospective study of percutaneous coronary intervention provides insight into the patterns of coronary artery disease with angiographic features. Our aim was to profile patients undergoing percutaneous coronary intervention to alleviate symptoms and improve survival in patients with coronary artery disease.

Keywords: Coronary artery disease, Coronary angiogram, Percutaneous coronary intervention, Single vessel disease.

INTRODUCTION

Coronary artery disease (CAD) is the leading cause of death worldwide, with more than three quarters of these deaths occurring in low- and middle-income countries.[1] Discontinuation of anticoagulants can result in an increased rate of thrombotic events due to the gradual recovery of platelet function and clotting activity.[2]In particular, percutaneous coronary intervention (PCI), which includes percutaneous transluminal coronary angioplasty (PTCA), stenting, and related techniques, represents an important therapeutic advance in the management of coronary artery disease. PCI effectively relieves symptoms and improves survival in some Subgroups of patients with CAD.[3][4] As equipment and technical skills evolve, the profile of patients undergoing PCI is constantly evolving, with increasingly complex patients and lesions being treated with this method.[5][6] This is a study conducted to assess the clinical profile of coronary artery patients undergoing PCI in terms of comorbidities, clinical symptoms and angiographic features.[7]

OBJECTIVES

To assess, monitor, and evaluate symptoms and angiographic patterns of Coronary artery disease.

METHODOLOGY

Study design

Our study was a prospective hospital observational study conducted at the Department of Cardiology, Malla Reddy Narayana Multi-Specialty Hospital, Hyderabad, Telangana, India. The study enrolled 100 consecutive patients who underwent percutaneous coronary intervention (PCI) in the cardiac catheterization laboratory between August 2021 and February 2022.patients undergoing PCI were included in the study after obtaining informed consent. Patients were included regardless of their clinical symptoms (stable angina, unstable angina, ST segment elevation myocardial infarction (STEMI) and non-ST segment elevation myocardial infarction (NSTEMI)). Demographic and clinical data of all patients were collected. Risk factors for arteriosclerosis (smoking, high blood pressure, diabetes) were identified and documented for each patient. Angiographic features were evaluated, including the location, type, and number of vessels involved.[8] Coronary artery disease was classified as single vessel disease (SVD), double vessel disease (DVD), or Triple vessel disease (TVD) based on the number of major divisions with significant involvement

STATISTICAL ANALYSIS

Statistical analysis was performed using the SPSS software package (version 22.0, SPSS Inc.). All continuous variables were expressed as mean + standard deviation (SD), and categorical variables were expressed as frequency and percentage. The chi-square test was used for one-tailed analysis of categorical variables.

Study period: Six months (August 2021 - February 2022)
Sample size: 100 Patients.

Study criteria

Inclusion criteria

- Patients admitted to Cardiology Department suffering from CAD.
- Patients who are willing to give informed consent for the study.
- Patients of age above 30 years are included.
- Patients of both genders.

Exclusion criteria

- Patients less than 30 years of age are excluded from the study.
- Pregnant and lactating women are excluded.
- Patients who do not cooperate and comply with the treatment.

RESULTS

Table 1: **Distribution of patients based on Gender**

Gender	Patients	Percentage
Male	71	71%
Female	29	29%

Table 2: Distribution of Patients based on age groups

AGE (Yrs)	30-49	50-69	70-89
Male	17	47	12
Female	6	18	5

Table 3: Distribution of Patients Based on Symptoms

S.No.	Symptoms	Sex	No. Of Patients
1.	Chest pain	Male	68
		Female	27

2.	Shortness of breath	Male	47
		Female	19
3.	Sweating	Male	22
		Female	6
4.	Palpitations	Male	11
		Female	9

Table 4: Distribution of Patients based on Treatment

S.No	Treatment	Sex	No. of Patients
1	PTCA	Male	48
		Female	23
2	CABG	Male	7
		Female	3
3	Medical Management	Male	15
		Female	4

Table 5: Distribution of Patients based on Diagnosis

S.NO	Diagnosis	Sex	No. of Patients
1	NSTEMI	Male	11
		Female	2
2	STEMI	Male	53
		Female	22
3	Unstable Angina	Male	7
		Female	5

Table 6: Distribution of Patients based on Angiogram

S.No	Angiogram	Sex	No. of Patients
1.	Single Vessel Disease	Male	39
		Female	18
2.	Double Vessel Disease	Male	14
		Female	6
3.	Triple Vessel Disease	Male	6
		Female	1

Table 7: Distribution of Patients based on 2D-Echo

S.no	2D Echo	Sex	No. of Patients
1.	MILD LV DYSFUNCTION (Grade-1)	Male	23
		Female	9
2.	MODERATE LV DYSFUNCTION (Grade-2)	Male	22
		Female	5
3.	SEVERE LV DYSFUNCTION (Grade-3)	Male	3
		Female	2

Table 8: Distribution of patients based on Comorbidities

S.No	Comorbidities	Gender	No of patients
1	Hypertension	Male	42
		Female	18
2	Diabetes Mellitus	Male	24
		Female	11

Sex		N	Mean	Std. Deviation	Std. ErrorMean	t	P
Age	Male	71	58.4085	11.55926	1.37183	.025	.980
	Female	29	58.3448	11.48065	2.13190		

			Procedure				Total
			PTCA Stent	PTCA 2 Stents	CABG	Medical Management	
Diagnosis	CAD-NSTEMI	Count	4	1	3	5	13
		%	30.8%	7.7%	23.1%	38.5%	100.0%
	CAD-AWMI	Count	42	13	7	13	75
		%	56.0%	17.3%	9.3%	17.3%	100.0%
	CAD-UnstableAngina	Count	5	6	0	1	12
		%	41.7%	50.0%	0.0%	8.3%	100.0%
Total		Count	51	20	10	19	100
		%	51.0%	20.0%	10.0%	19.0%	100.0%
Pearson Chi-Square Value = 15.143							
P Value = 0.019							

	Procedure	N	Mean	Std. Deviation	Std. Error	P
Age	PTCA Stent	51	58.9020	12.07519	1.69086	0.445
	PTCA 2 Stents	20	55.9500	9.66532	2.16123	
	CABG	10	55.5000	9.68676	3.06322	
	Medical Management	19	61.1053	12.42263	2.84995	
	Total	100	58.3900	11.47848	1.14785	

	Diagnosis	N	Mean	Std. Deviation	P
Age	CAD- NSTEMI	13	55.6154	12.86169	0.597
	CAD-AWMI	75	58.6000	10.79790	
	CAD- UnstableAngina	12	60.0833	14.43769	
	Total	100	58.3900	11.47848	

The demographic and clinical profile of the study patients is described in the tables. The mean age of the study group was 58.4085 years. Of the 100 patients studied, 71 were male (mean) and 29 were female (mean). Among the risk factors examined, arterial hypertension was the most common with 60 patients each. Overall, the most common presentation was anterior myocardial infarction (75%), followed by NSTEMI (13%) and unstable angina (12%).

DISCUSSION

The main findings of the study were:

- The PCI population in our hospital was (mean age: 58.4 years)
- Hypertension was the most commonly observed risk factor (60%) and STEMI was the most common occurrence (75%)
- The most common angiographic pattern was single vessel disease (57%). RCA was the most commonly affected vessel (51%).

This study provides an overview of the profile of patients undergoing PCI at our hospital and critically analyzes patient demographics and angiographic characteristics. Overall, STEMI was the most common manifestation (75%) and chest pain was the most common clinical manifestation in women compared to men. ST-segment elevation acute coronary syndrome was more common in males (70.6%) than females (29.3%). Regarding the angiographic profile of patients, the most common angiographic feature (57%) was Single vessel disease (SVD).[9] RCA was the most commonly affected vessel (51%). These data are comparable to those observed in previous studies.[10]

CONCLUSION

We strongly believe in the need to set up such registries across all Indian states which would allow us to enrich our databases and work to improve the quality of care.

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