EXPERIENCE OF CORONARY INTERVENTIONS IN OCTOGENARIANS IN A TERTIARY CARDIAC CARE CENTRE IN SOUTH INDIA

Prashanth Kumar Malkiwodeyar[1], Durgaprasad Kabade[2], Narendra Hiregoudar[3], Ishwar Hasabi[4], Shivappa Anurshettar[5]

[1]Assistant Professor, Department of Medicine, Karnataka Institute of Medical Sciences, Hubli.
[2]Associate Professor, Department of Medicine, Karnataka Institute of Medical Sciences, Hubli.
[3]Associate Professor, Department of Cardiology, Karnataka Institute of Medical Sciences, Hubli.
[4]Professor and HOD, Department of Medicine, Karnataka Institute of Medical Sciences, Hubli.
[5]Professor and HOD, Department of Cardiology, Karnataka Institute of Medical Sciences, Hubli.

ABSTRACT

BACKGROUND

There is a paucity of data among octogenarians undergoing coronary interventions in India. These patients have generally been excluded from randomised trials. As a result, there are no evidence-based guidelines regarding PCI in very elderly.

The aim of this study is to describe the epidemiology, clinical characteristics, management and the outcomes of patients over the age of 80 years who were undergoing coronary interventions.

MATERIALS AND METHODS

We evaluated the outcomes of all patients over the age of 80 years admitted in KIMS, Hubli, during the year 2015-16 undergoing coronary interventions including coronary angiography and Percutaneous Coronary Interventions (PCI).

RESULTS

We identified 36 octogenarians (67% men, 33% women; Mean Age of 84.2 ± SD 3.6 years). 52.3 percent of patients presented with an acute coronary syndrome treated either with thrombolysis or medical stabilisation followed by coronary angiography. One patient in the study was taken for primary Percutaneous Coronary Interventions (PCI). Mean duration of hospitalisation was 6.69 ± 6.8 days. Overall, the frequency of in-hospital death was n=2 (5.5%) and both the patients died while awaiting CABG.

CONCLUSION

Our study shows that coronary interventions are safe and effective and are not associated with any major complications, which are specific to this subset. Thus, advanced age should not be considered a contraindication for coronary interventions when clear indications are present.

KEYWORDS

Coronary, Intervention, Angiography, Angioplasty, Octogenarians.

HOW TO CITE THIS ARTICLE: Malkiwodeyar PK, Kabade D, Hiregoudar N, et al. Experience of coronary interventions in octogenarians in a tertiary cardiac care centre in South India. J. Evid. Based Med. Healthc. 2017; 4(26), 1547-1552. DOI: 10.18410/jebmh/2017/302

BACKGROUND

It is well known that age is the most powerful risk factor for hypertension, cardiovascular disease and death. No specific guidelines exist for CAD management for this particular population. Early clinical trials enrolled few individuals aged over 80 years of age.

The changing demographics in the western countries are reflected in the contemporary practice of interventional cardiology where an increasing number of older patients are being referred for Percutaneous Coronary Interventions (PCI).[1] Increasing age is an important determinant of outcomes after percutaneous revascularisation.[2] However, advances in technology, procedural techniques and adjunctive medical therapies have resulted in improvement in procedural outcomes.[3,4] Thus, advanced age by itself is not a contraindication to PCI and these days it is not uncommon for it to be performed in octogenarians.[1] Long-term outcomes in octogenarians requiring PCI appears to be similar to age-matched cohorts and in selected patients, in-hospital outcomes are comparable to younger patients in western population.[5] However, there is a paucity of outcomes data in this population. These patients have generally been excluded from randomised trials. As a result, there are no evidence-based guidelines regarding PCI in the very elderly population.

Thus, the aim of this study was to describe the clinical characteristics and the outcomes of all patients over the age of 80 years admitted in our institute during the year 2015-16 undergoing coronary interventions including

Financial or Other, Competing Interest: None.
Submission 01-03-2017, Peer Review 15-03-2017,
Acceptance 23-03-2017, Published 29-03-2017.
Corresponding Author:
Dr. Prashanth Kumar Malkiwodeyar,
#86, Mahanta Krupa, Banashankari Badavane,
Vidyanagar, Hubli-580031.
E-mail: drprashanthm@yahoo.com
DOI: 10.18410/jebmh/2017/302

coronary angiography and Percutaneous Coronary Interventions (PCI).

MATERIALS AND METHODS

Systematic review of all patients aged over 80 years in the year 2015-16 who underwent coronary interventions were included in the study. A total of 36 patients were analysed and the data were tabulated using SPSS software version 21.0.0.0 IBM Corp. 2012 and statistical analysis was done.

Data collected include epidemiology, baseline clinical characteristics, various biochemical parameters, use of acute medications (<24 hrs. from presentation), use and timing of invasive cardiac procedures (e.g., coronary angiography, percutaneous coronary revascularisation), in-hospital clinical outcomes and discharge medications and follow up details.

Continuous variables are described as medians and 25th and 75th percentiles, whereas categorical variables are described as frequencies.

RESULTS

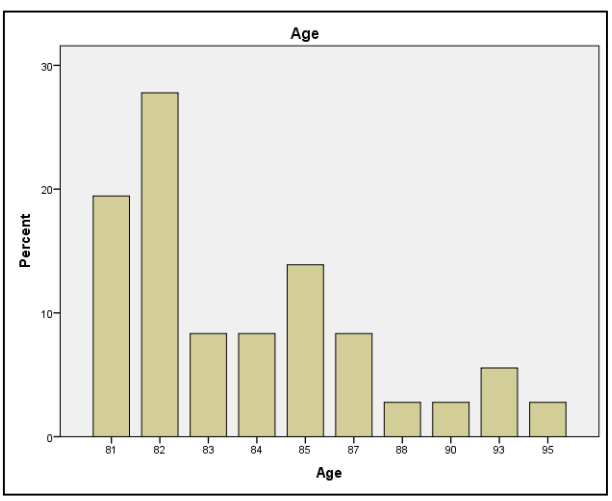

Figure 1. Age Distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
Anginal equivalents (0)	7	18.9	18.9	21.6
Typical angina (1)	29	78.4	78.4	100.0
Total	**36**	**100.0**	**100.0**	

Table 1. Chest Pain

Patients	n	Percentage (%)
ACS	19	52.7
CHF	3	8.3
Others	14	38.8
Total	**36**	**100**

Table 2. Clinical Presentation of Patients

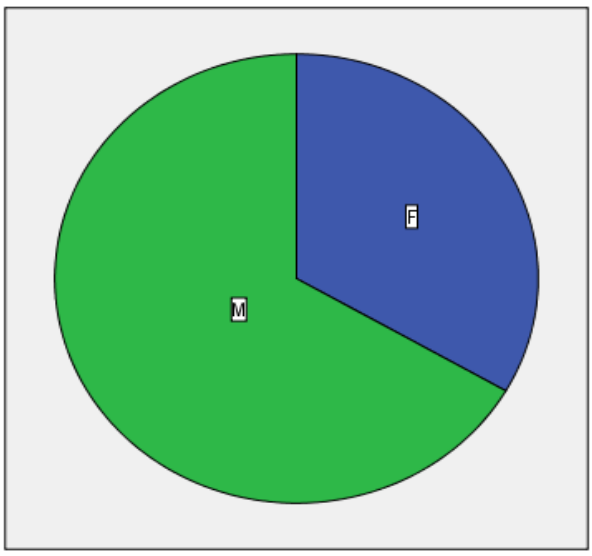

Figure 2. Sex Distribution

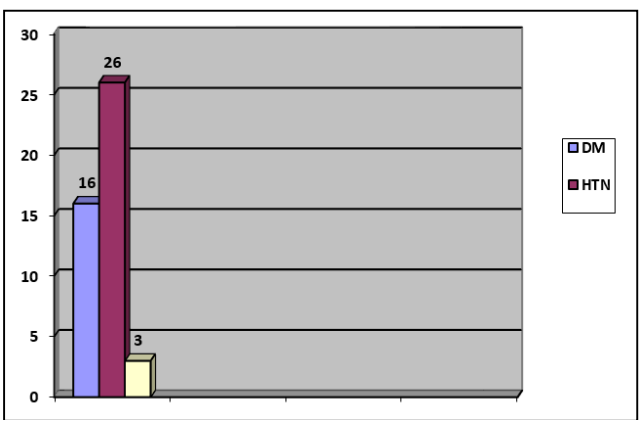

Figure 3. Comorbidities

	Number	Percentage
DM	16	31.3
HTN	26	50.9
COPD	3	5.8

Table 3. Comorbidities

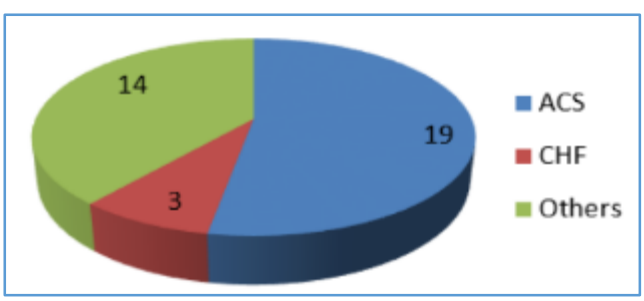

Figure 4. Clinical Presentation of Patients

Examination

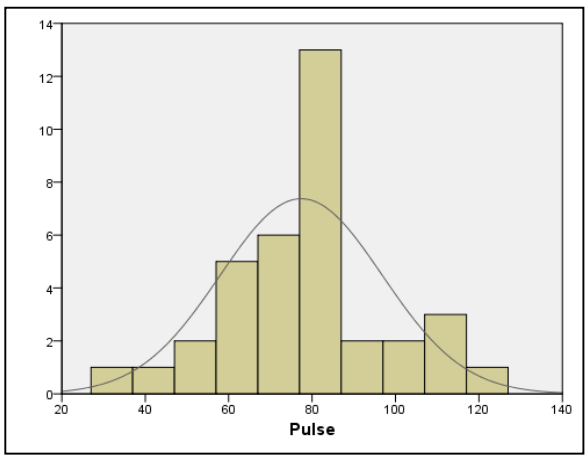

Figure 5. Pulse among Patients in the Study

Blood Pressure

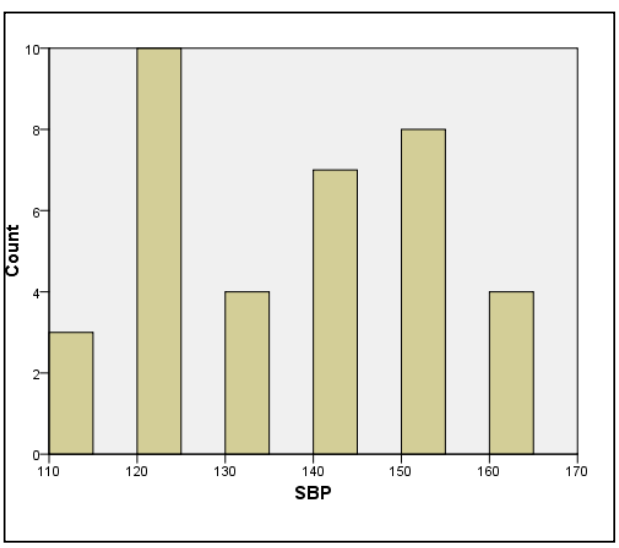

Figure 6. Systolic Blood Pressure

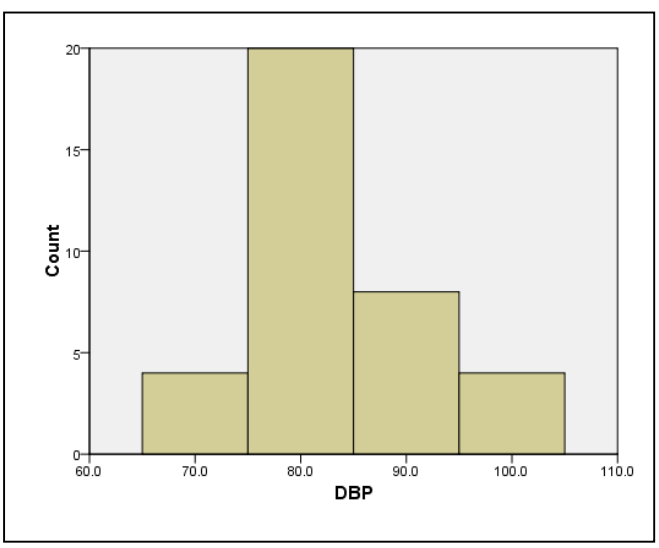

Figure 7. Diastolic Blood Pressure

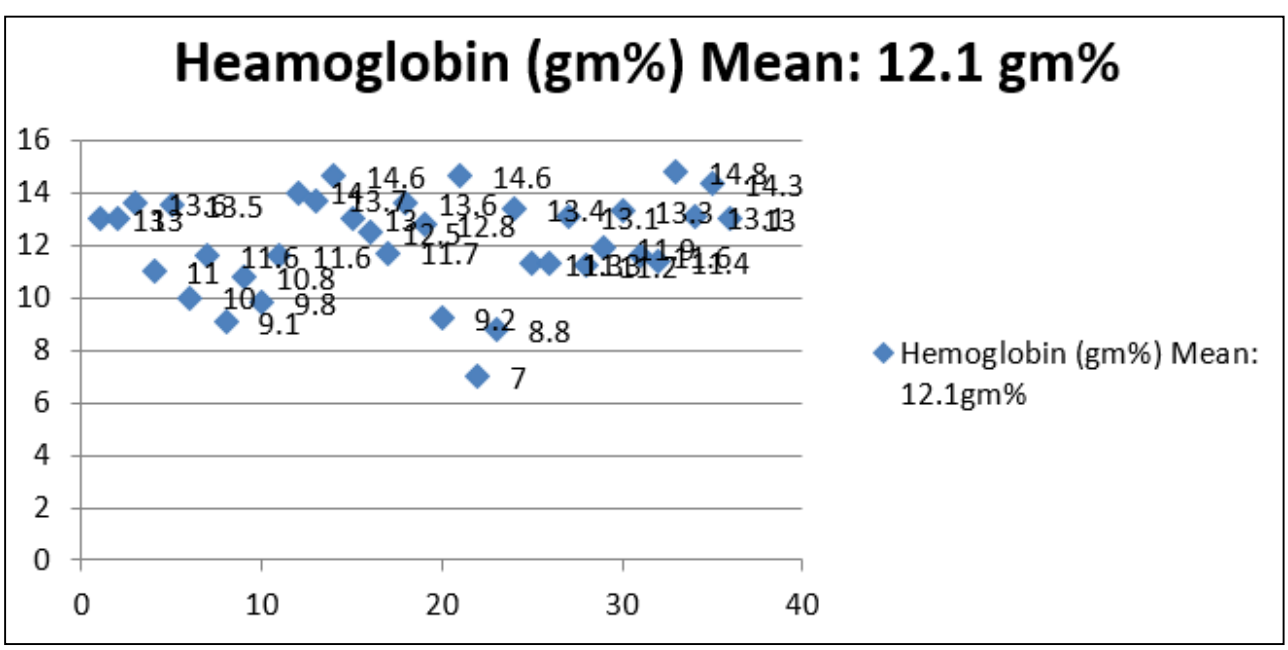

Figure 8. Haemoglobin (gm%); Mean- 12.1 gm%

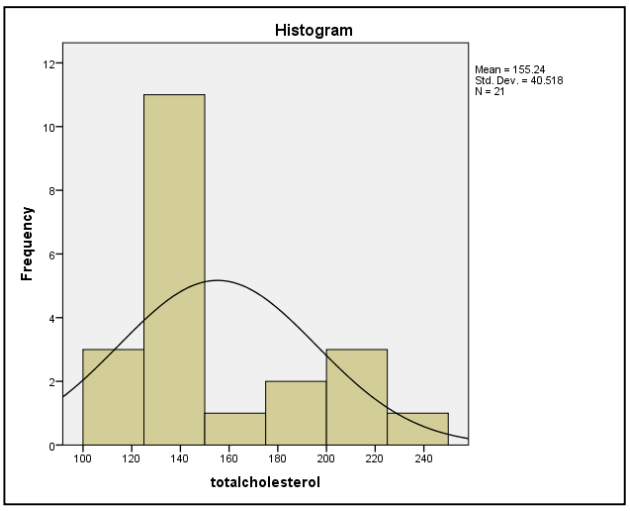

Figure 9. Total Cholesterol

There were total 19 ACS cases in the study of which thrombolysis was done in 7 cases. Anticoagulation was done with unfractionated heparin in 19 cases and 9 cases with low molecular weight heparin.

Coronary angiography was done through right femoral approach in majority of patients (n=35) and in one case, right radial approach was used. Obvious coronary artery calcification was seen in majority of patients under fluoroscopy. 6 cases had significant left main coronary artery lesions, 10 patients had single vessel disease, 4 patients had double vessel disease, 9 patients had triple vessel disease and 8 patients had insignificant coronary artery disease. 32 (88.9%) patients had right dominance and one patient had codominant coronary system (2.8%).

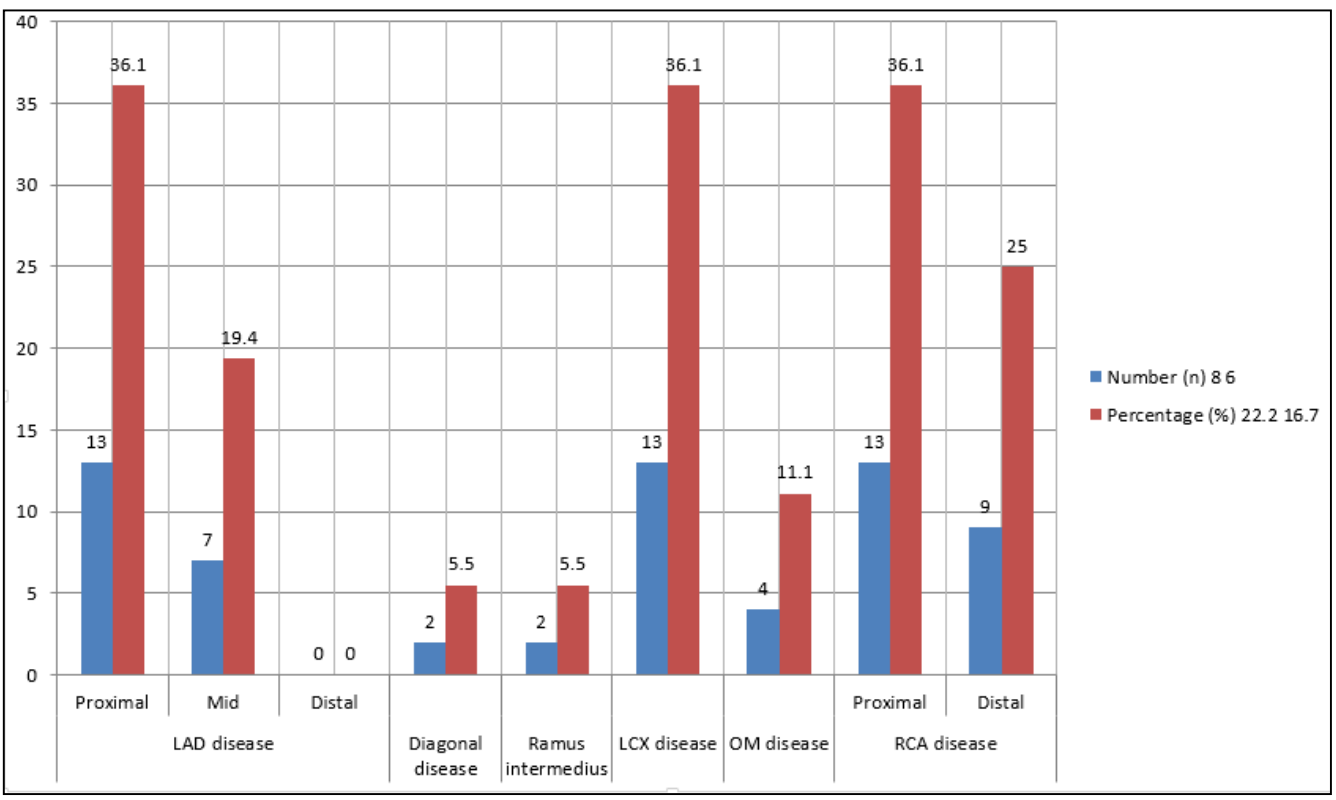

Figure 10. Coronary Artery Disease in the Octogenarians in the Study

		Number	Percentage
Left main disease		6	16.7
LAD disease	Proximal	13	36.1
	Mid	7	19.4
	Distal	0	0
Diagonal disease		2	5.5
Ramus intermedius		2	5.5
LCX disease		13	36.1
OM disease		4	11.1
RCA disease	Proximal	13	36.1
	Distal	9	25

Table 4. Lesion Distribution in Coronary Angiogram

	Number	Percentage
Left main disease	6	16.7
SVD	10	27.8
DVD	4	11.1
TVD	9	25
Insignificant disease	8	22.2

Table 5. Coronary Artery Disease Distribution Among Study Population

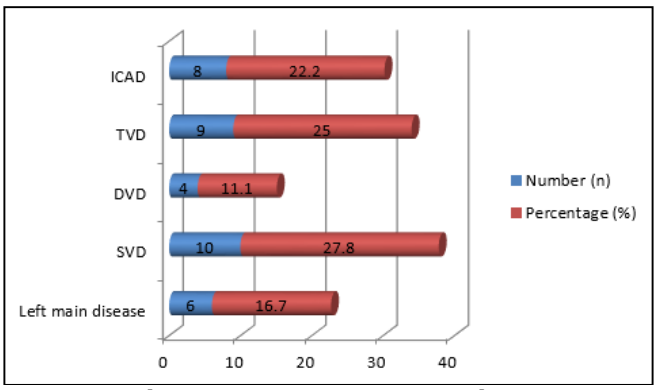

Figure 11. Coronary Artery Disease Lesion Distribution in the Study

PTCA was advised/planned in 14 cases, OMT was advised in 12 cases, CABG was advised in 10 cases.

CAG Advice	Number	Percentage
OMT	12	33.3
PTCA	14	38.8
CABG	10	27.7

Table 6. Results in the CAD Group

PTCA was done successfully in 7 cases with TIMI-3 flow. The arteries affected were RCA in 4 cases, LAD in 3 cases and OM in one case. DES was used in 5 cases and BMS was used in 2 cases. De novo stenting was done in 5 cases. Pre and post dilatation were done in two cases.

	Medication Use	Percentage
Aspirin	33	91.6
Clopidogrel	34	94.4
Statin	35	97.2
ACEI/ARB	29	80.5
Beta blocker	28	77.7
Total	**36**	**100**

Table 7. Medications Used in the Study Group

DISCUSSION

As the average life span has increased over the last few decades, the elderly are the fastest growing segment of the population in most Western countries.[5] The prevalence of coronary artery disease is high in this age group. Invasive investigations are being used with increasing frequency in patients with CAD refractory to medical therapy.[6]

There is a growing body of data concerning the safety and the efficacy of Percutaneous Transluminal Coronary Angioplasty (PTCA)[7,7,4,5,8-11] and Coronary Artery Bypass Grafting (CABG)[12,13] in the very elderly.[6,12-16] Safety and efficacy of coronary interventions in the very elderly should offer benefit in terms of survival or quality of life in order to be justified. Accordingly, we conducted a retrospective study of coronary interventions performed in octogenarians at our center in order to determine the safety and efficacy.

We analysed 36 patients over the age of 80 years who underwent coronary interventions in our hospital. The age distribution was from 81 to 95 years (84.2 ± 3.6 years); Sex distribution was skewed towards male preponderance (33% women). Mean duration of hospitalisation was 6.69 ± 6.8 days. 52.3 percent of patients presented with an acute coronary syndrome treated with either thrombolysis or medical stabilisation; one patient underwent Primary Percutaneous Coronary Interventions (PPCI).

In a series by Francois J Ricou, et al,[15] incidence of triple vessel disease and left main disease was 42% and they noted that it reduced over the years. In our study, left main disease was seen in 16.7% and triple vessel disease was found in 25% of the cases. In their study, mortality was seen in 7% of the cases, although none of the deaths were related to the procedure itself.

In one of the largest series of octogenarians study undergoing PCI by Wayne BB et al,[5] analysed 7,472 patients. The left ventricular ejection fraction was slightly lower in the octogenarians with a mean of 47%. In our study, patients had an average EF of 52.04%. In that study, they were more likely to have disease of proximal LAD and multivessel disease (two vs. three-vessel disease in 57% vs. 45%, respectively). In our study, left main disease was found in 16.7% and double and triple-vessel disease accounted for 11 and 25% of the patients. Overall mortality in that series was 1.1% and in our study, mortality observed was 5.5%.

In a Scottish Revascularisation Registry Data, Cathy Johnman, et al[7] found that use of clopidogrel was around 63% and radial access was used in <5% patients. In our study, clopidogrel use was around 94.4% and radial route was used for intervention in 2.8% cases.

Although, primary PCI was done in only one patient (2.8%) in our study group, patient had good result and is on regular follow up and at 2 years follow up is having good quality of life. This is comparable to other studies in which they looked for quality of life in octogenarians after the interventions.[15]

Coronary interventions in very elderly population should be done with caution as they have multiple influencing factors like peripheral arterial tortuosity, coronary artery calcification, local bleeding complications at puncture site are frequent in elderly in view of local factors like laxity of skin and lack of support of surrounding structures. Great caution must be exercised while using contrast to prevent contrast-induced nephropathy. In the elderly population, homeostasis is maintained in a delicate balance and great care must be taken to prevent the complications.

CONCLUSION

Our study shows that coronary interventions are safe and effective and are not associated with any major complications, which are specific to this subset. Thus, advanced age should not be considered a contraindication for coronary interventions when clear indications are present.

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