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COMPARISON OF CLINICAL PROFILES OF PATIENTS WITH ACUTE CORONARY SYNDROME OF THE AGE ABOVE AND BELOW 40 YEARS

1Dr. Shubhangi Ghule, 2Dr. Umesh Khedkar, 3Dr. Sandip Ghule

1Assistant Professor , Medicine , MGM Medical College and Hospital, Chhatrapati Sambhaji Nagar
2Assistant professor, Medicine, CSMSS Medical College , Limbe Jalgaon District Aurangabad, Maharashtra
3Senior Resident, Medicine, MGM Medical College and Hospital,Chhatrapati Sambhaji Nagar.
Email:drskg87@gmail.com
dr.umeshkhedkar@gmail.com
drsandipghule@gmail.com

ABSTRACT

Background: Acute coronary syndrome (ACS) is being increasingly reported among younger adults, showing risk factor patterns distinct from older patients. High-sensitivity C-reactive protein (hs-CRP) serves as an important marker of inflammation in cardiovascular disease.

Methods: A prospective analysis was conducted on 200 ACS patients, grouped as <40 years and >40 years. Demographic details, clinical presentation, conventional and emerging risk factors, biochemical markers including hs-CRP and homocysteine, angiographic features, and in-hospital outcomes were evaluated and compared.

Results: Unstable angina was the predominant clinical presentation in both age groups. Younger patients showed higher prevalence of tobacco use, positive family history of coronary artery disease, and raised homocysteine levels, whereas hypertension and diabetes were more common in older patients. Elevated hs-CRP levels were frequently observed across both groups. Single-vessel involvement was more common in younger individuals, while multi-vessel disease was predominant in older patients.

Conclusion: The risk profile of ACS varies significantly with age, with lifestyle and genetic factors playing a greater role in younger patients and metabolic conditions in older adults. Persistently elevated hs-CRP levels across ages underscore its relevance in ACS risk assessment.

KEYWORDS: Acute coronary syndrome; High-sensitivity C-reactive protein;Serum homocysteine; Young adults; Cardiovascular risk factors; Coronary artery disease

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INTRODUCTION

Overview of the Topic

The predilection of Indians to coronary artery disease has been confirmed beyond doubt (Bubulytė and Maneikienė, 2024). Although coronary heart disease primarily occurs in patients over the age of 40, younger men and women can be affected. Most studies have used an age cut off of 40 to 45 years to define “young” patients with CHD or acute myocardial infarction. The same age definition is used in this study. In addition to the traditional risk factors, CRP has emerged as the most exquisitely predictive marker of future cardiovascular risk. Older tests for CRP, which are adequate for monitoring severe inflammatory conditions, cannot measure levels accurately within the range needed for cardiac risk detection, so the “high sensitivity” CRP i.e. hs-CRP must be done (Henein et al. 39). Also it is considered to add to the predictive value of Troponin T and Framingham score. Dyslipidemia characterized by elevated total cholesterol, LDL-C and lowered HDL-C is a conventional risk factor observed in myocardial infarction patients (Abera et al. 2024). Also complete lipid profiles including TC/HDL-C, TG/HDL-C and LDL-C/HDL-C should be considered as a significant risk factor. A large body of literature suggests a relationship between hyperhomocysteinemia as well as hyperuricemia and coronary events. Hence ultimately this study is aimed to compare the clinical profiles including risk factors of patients with acute coronary syndrome of the age above and below 40 years. And special emphasis will be given in finding out the clinical significance of hs-CRP in patients with acute coronary syndrome.

AIMS AND OBJECTIVES

The thesis article is focused on interpreting the crucial discussion of comparison of clinical risks, the biochemical parameters, and outcomes of acute coronary syndrome that occurs in individuals below and above the age of 40 years, particularly regarding the significance of “high-sensitivity C-reactive protein”.

Objectives:

1. To evaluate the differences in risk factors, demography, clinical presentation, severity, complications and mortality in patients with acute coronary syndrome of the age above and below 40 years.
2. Clinical significance of hs-CRP in patients with acute coronary syndrome.

LITERATURE REVIEW

Age-related Demographics and Risk Factors of Acute Coronary Syndrome

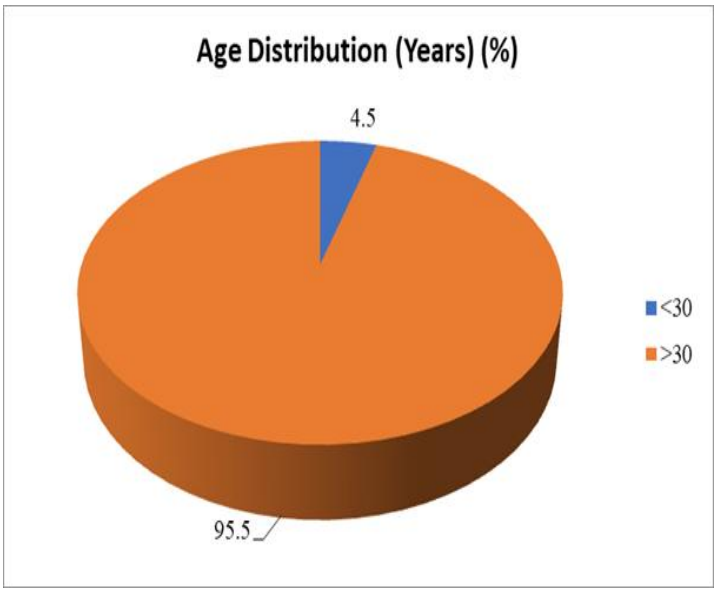

Figure 1: Effectiveness of Acute Coronary Syndrome based on Age Group

(Source: European Journal of Cardiovascular Medicine, 2024)

The chart showcased that the health issue of acute coronary syndrome is majorly seen among the people above 30 years old, which crossed 95.5%, while the rest of the percentages stand for people in the age group below 30.

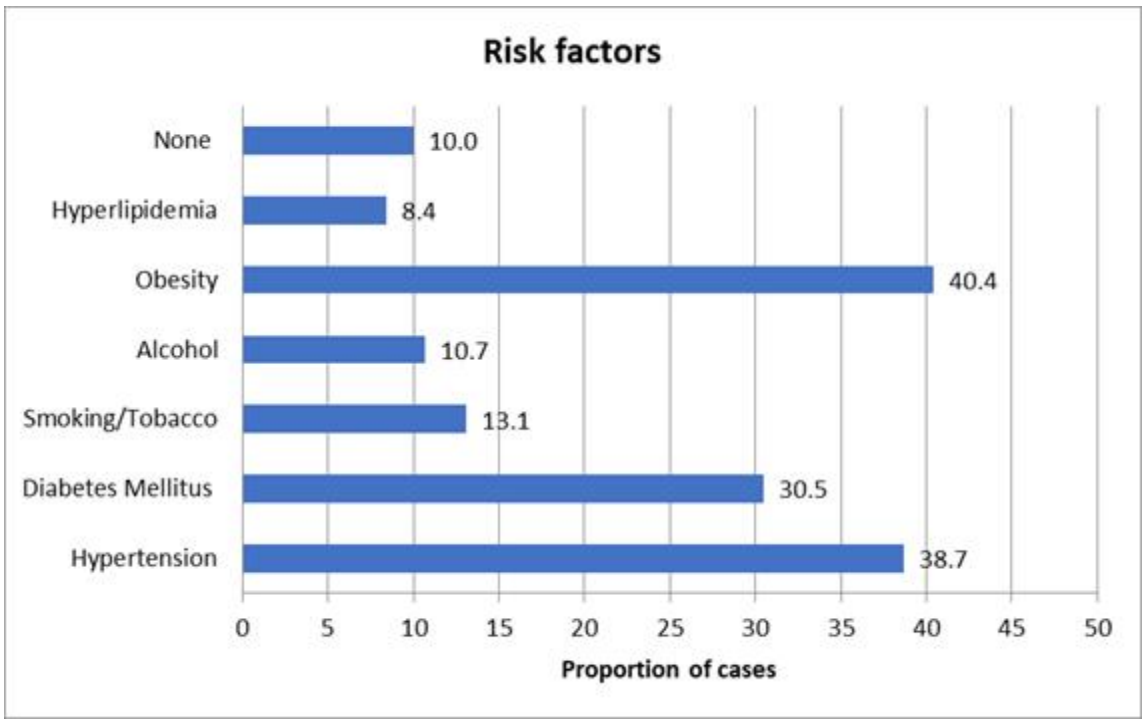

Figure 2: Effectiveness of Acute Coronary Syndrome based on Age Group

(Source: European Journal of Cardiovascular Medicine, 2024)

The graphical figure demonstrated that the highest chances of having a heart attack due to acute coronary artery disease are hypertension, according to the report, which resulted in 38.7%. Also, there is a great role of diabetes and tobacco consumption in this health issue.

The research by **Khot *et al.* (2003)** demonstrated that among the 50% of people at risk of acute coronary disease are related to the conventional challenges such as smoking, diabetes, "hyperlipidemia" and "hypertension". It is also mentioned that despite these risk factors, there are other factors that has a potential role in affecting the CHD and treatment in non-traditional methods for addressing the issue. Alongside this, the largely collected sample of the research observed that only 10% to 15% patients lack these four conventional risk factors. Overall, the research added that younger individuals, have noticeable rates of smoking as reported. However, the study validated the clinical medicine, interpreted public health policies and provided in-depth knowledge in this article, so that it can provide a cohesive insight into this. Although there has lack of broader discussion of the risk factors, including "Diabetes, hyperlipidemia, and hypertension", rather focusing on the tobacco or smoking.

Medical Complexities and Ultimate Outcomes in comparison of two different age groups

The theme is focused on identifying the effectiveness and ultimate result of the treatment within the medical complexities of the younger and older patients differently.

The research by **Heneghan *et al.* (2022)** outlined that the medical complexities was determined as a high risk in extensive care. Just like establishing medical complexity necessitates uniform criteria, appreciating the differences based on age in ACS demands standardized methods for determining risk factors and outcomes. The contrast identifies in what ways age affects disease presentation, response to treatment, and prognosis. Sparse evidence regarding genetic predisposition and long-term prognosis in younger patients persists as a challenge.

Skolnick, Adam *et al.* (2007) presented a survey that was collected from 5557 patients who are aged≥90 and affected by "Acute Coronary Syndromes". This in-depth study was a bright provision of the results of the medical complexities and outcomes after treatment among the older people with this damage. Alongside this, there was a similarity observed among the two aged groups of people, such as the older elderly who are nearly 90 and younger were the younger age group below 75. In this study, the researcher found that both groups show similar increases in bleeding and lower adjusted healthcare observations. However, this study is based on slightly different age groups from the study topic i.e. less than and more than 40 years , which was discussed in this study. Yet, the observation was relevant to the 40+ people with acute coronary syndrome, because the statement results might be the same for them also.

On the other hand, according to the research by **Haider *et al.* (2020)** the cardiovascular diseases, such as acute coronary syndrome, are increasing noticeably as per the clinical reports in recent years. Also, the study demonstrated that the ACS can be vulnerable to the younger people in sex and gender-specific factors in the biochemical treatment. Alongside this, the non-traditional risks are also identified through the VIRGO study, which found that young to middle-aged women are being hospitalised in this condition more than men in the current time.

Haider *et al*. 2020, The effects on younger people, especially women, are observed in the oestrogen and testosterone, such as vascular apoptosis, atherothrombosis and others. Yet, this study was broadened on the women's effectiveness on the medical complexities regarding ACS, but this is also applicable to the younger body for the same disease.

The Clinical role of "high-sensitivity C-reactive protein" in mitigating the risks related to acute coronary syndrome

The theme aims to interpret the importance of "high-sensitivity C-reactive protein" in clinical application in the treatment and reducing the risk of "Acute Coronary Syndromes".

Libby and Ridker, (2006) sophistically mentioned the role of is effectiveness of "high-sensitivity C-reactive protein" presence in the medical treatment of acute coronary disease through inflammation. In particular, it is mentioned that the inflammation method operates the "atherosclerosis" and controls the level of vulnerability. Alongside this, the study also demonstrated that the predictive power of biomarkers of inflammation, such as "high-sensitivity C-reactive protein" or hsCRP is as non-traditional risk factor, more in younger population.

Pearson TA,Mensah GA,Alexander RW (2006) American Heart Association and Centres of Disease control and prevention

issued guidelines in 2003 for the use of hsCRP in clinical practice. Briefly, hsCRP levels less than 1,1 to 3 and higher than 3 mg/litre should be interpreted as lower, moderate, and higher relative vascular risk, respectively, when considered along with traditional markers of risk.

Levels of hsCRP more than 3mg/litre also predicts recurrent coronary events, thrombotic complications after angioplasty, poor outcome in the setting of unstable angina and vascular complications after bypass surgery.

Kaura, Amit, *et al.* (2022) holistically interpreted that the application of "high-sensitivity C-reactive protein or (hsCRP)" is potentially increased as the biomarker of advanced "cardiovascular (CV) therapies". However, this study was based on the data collected from 257,948 individuals by the "National Institute for Health Research Health Informatics Collaborative", which found that the 'high-sensitivity C-reactive protein or (hsCRP)" might be helpful in assessing the risk of "acute coronary disease" in the affected people.

On the other hand, the study by **Denegri *et al.* (2021).** examined several complications such as morbidity and mortality, regarding atherosclerosis events. However, there are several evidence and instances available that suggest for role of hsCRP in inducing inflammation in atheroma and raised levels can predict risk of coronary events and timely intervention by modifications in unhealthy lifestyle can reduce inflammation and thus the risk of coronary events.

Interconnection between Biochemical and Clinical Indicators such as "Troponin T and lipid" levels and "severity scores" to diagnose progress

It is important to identify the relation between the biomarker chemicals like "high-sensitivity C-reactive protein" and the clinical indicators such as "troponin T and lipid" levels and "severity scores" in treating ACS (Mitsis *et al.* 2025).

The article by **Maayah *et al.* (2024)** underscored that the cardiac troponin or Tn is very important

to diagnose "acute coronary syndrome" of patients with angina. Also, the study mentioned that the precision of serum Troponin measurement has been improved by analytical sensitivity protein, yet it reduce the efficiency of the outcomes. However, the role of troponin T is increased by the clinical experts because it enhances the standard of "electrocardiographic", "echocardiographic", imaging and laboratory data besides physical examination.

Role of homocysteine in atherosclerosis:

Paul Ridkar, Pitter Libby et al, Patients with rare inherited defects of methionine metabolism can develop severe hyperhomocysteinemia (plasma levels higher than 100μmol/liter) and 39 have markedly elevated risk of premature atherothrombosis as well as venous thromboembolism. (110)

Mechanisms suggested to account for these effects include endothelial dysfunction, accelerated oxidation of LDL cholesterol, impairment of flow mediated endothelium-derived relaxing factor with subsequent reduction in arterial vasodilation, platelet activation, and oxidative stress.

Nygard O et al (129) have shown a strong graded relation between increasing homocysteine level and overall mortality in individuals with angiographically demonstrable CAD.

METHODOLOGY

The study used a mixed method in this research to investigate the information that the thesis presented. The study collected data from a tertiary care hospital for the primary data.The study initially gathers secondary data for setting up the research structure and initial knowledge from the research of scholars, governmental websites and reports and books (Ganesha and Aithal, 2022). In the hospital, the study worked on collecting data for one year from 200 selected patients with different age groups, who were affected by acute coronary disease and admitted to the cardiology and medicine wards. The study was based on a prospective study design that divided the participants into groups by age as per the inclusion and exclusion criteria. The clinical outcomes were considered as death rates during hospital stay, average duration of hospitalisation and complications.

Inclusion Criteria

1) Cases of Acute Coronary Syndrome that includes Unstable angina, Non-ST segment elevation myocardial infarction and ST segment elevation myocardial infarction. 2) Men and non-pregnant women, age group > 18 years. 3) Those willing to participate in this study with informed written consent.

Exclusion Criteria

Patients not willing to participate in this study. Patients with H/O Trauma,Tuberculosis or HIV,acute bacterial and viral infections. Patients with rheumatoid arthritis, SLE and other connective tissue disorders, malignancy. Pregnant women, Women taking oral contraceptive pills or hormone replacement therapy.

The ethical considerations for this study were to have valid consent from the patients who are participating in this data collection. Also, the researchers conduct tests like ECG, chest X-ray and "2D echocardiography" and "coronary angiography" for the research (ELSHAFEY, 2025).

DATA ANALYSIS

After the data collection of all 200 patients, the data and information analysis and interpretation were conducted in Microsoft Excel with the help of SPSS software version 25 and Sigma Plot version 11. The data was divided into qualitative and quantitative data, as it provides both the thematic and algorithmic solutions. The quantitative analysis demonstrated the data with the help of Mean, Median, IQR and SD with Pearson correlation coefficient (Barat *et al.* 2022). Conversely, the qualitative data analysis presented the frequency, sum and percentage table of the required results, which was conducted with the help of the Chi-Square test.

P value less than 0.05 is taken as significant level.

Ethical Considerations

Approval for Investigation: The researcher should have a legal approval document from the authority of the healthcare centre and the Institutional Ethics Committee, where it conducts the investigation is conducted (Post and Blustein, 2021).

Informed Consent: All the participants should have information and to be aware of the purpose of this data collection and permit for studying their health data in the study by giving written informed consent.

Data Privacy of the Patients: The researchers in this study would consider to secure the private data of the patients and ensuring privacy.

Participants' Right to Withdraw: The participants have the right to withdraw from the study participation, if they want, even after it is permitted for the data collection.

Fairness and Transparency: The researchers have to maintain fairness and equality among the participants, while communicating with them and collecting data as well as remain transparent with them.

RESULTS

Comparison of the data in patients with < 40 years and >40 years of age

Table No.1) Distribution of study groups according to Age

Age	< 40 years	> 40 years	Total
No. of patients	38 (19%)	162 (81%)	200 (100%)

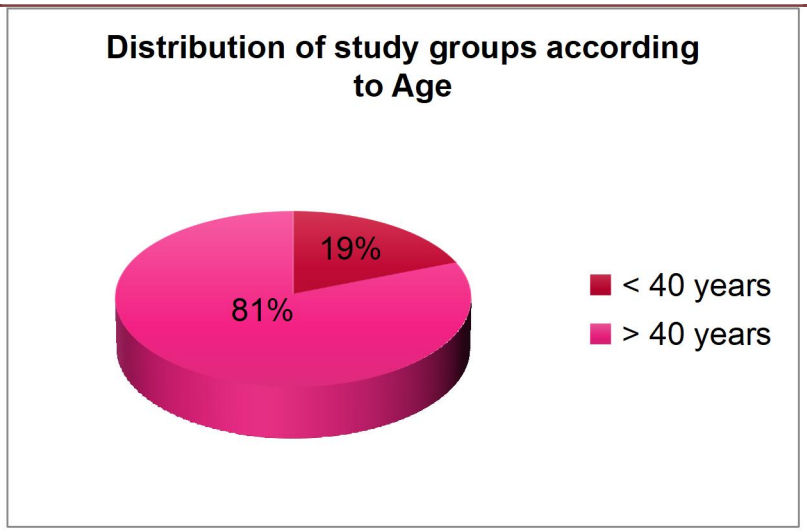

Table No.2) Distribution of patients according to Age groups

Age Groups	Frequency	Percent
18 to 25	1	0.50%
26 to 40 Yrs	37	18.50%
41 to 60 Yrs	110	55.00%
61 to 80 Yrs	47	23.50%
More than 81 Yrs	5	2.50%

Table No.3) Mean age

	N	Mean	Std. Deviation	Median	IQR	Minimum	Maximum
Age(yrs)	200	53.25	12.45	52.00	17.00	18.00	88.00

Table No 4) Association among study groups between Age & diagnosis

Diagnosis		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
NSTEMI	Count	11	41	52
	Percent	28.9%	25.3%	26.0%
STEMI	Count	8	34	42
	Percent	21.1%	21.0%	21.0%
Unstable angina	Count	19	87	106
	Percent	50.0%	53.7%	53.0%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	Df	P value	Association is
Pearson Chi-Square	0.236	2	0.888	Not significant

Table No. 5) Distribution of risk factors among patients

Risk factor	< 40 years (Percentage)	> 40 years (Percentage)	Overall (Percentage)
Hypertension	28.9%	58%	52.5%
Diabetes mellitus	21.1%	46.9%	42%
Tobacco consumption	65.8%	34.6%	40.5%
Family h/o CAD	44.7%	17.3%	22.5%
Obesity	28.9%	30.3%	27.5%

Table No 6) Association among study group between Age &Hypertension

HTN		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
No	Count	27	68	95
	Percent	71.1%	42.0%	47.5%
Yes	Count	11	94	105
	Percent	28.9%	58.0%	52.5%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	10.484	2	0.005	Significant

Table No 7) Association among study groups between Age &Diabetes mellitus

DM		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
No	Count	30	86	116
	Percent	78.9%	53.1%	58.0%
Yes	Count	8	76	84
	Percent	21.1%	46.9%	42.0%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	8.450	1	0.004	Significant
Fisher's Exact Test			0.004	Significant

Table No 8) Association among study groups between Age & Tobacco consumption

Tobacco		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
No	Count	13	106	119
	Percent	34.2%	65.4%	59.5%
Yes	Count	25	56	81
	Percent	65.8%	34.6%	40.5%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	12.451	1	0.0004	Significant
Fisher's Exact Test			0.001	Significant

Table No 9) Association among study groups between Age & Family H/O CAD

Family H/O CAD		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
No	Count	21	134	155
	Percent	55.3%	82.7%	77.5%
Yes	Count	17	28	45
	Percent	44.7%	17.3%	22.5%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	13.668	2	0.001	Significant

Table No 10) Association among study groups between Age and BMI

BMI		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
Less than 24.9	Count	9	37	46
	Percent	23.7%	22.8%	23.0%
25 to 29.9	Count	18	81	99
	Percent	47.4%	50.0%	49.5%
30 to 34.9	Count	10	39	49
	Percent	26.3%	27.2%	24.5%
35 to 39.9 $	Count	0	5	5
	Percent	0.0%	3.1%	2.5%
More than 40 $	Count	1	0	1
	Percent	2.6%	0.0%	0.5%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	5.550	4	0.235	Not significant
Pearson Chi-Square #	0.137	3	1.000	Not significant

$ Row data was merged to apply chi-square test #.

Table No 11) Association among study groups between Age & Homocysteine

Homocysteine		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
Normal	Count	15	98	113
	Percent	39.5%	60.5%	56.5%
Raised	Count	23	64	87
	Percent	60.5%	39.5%	43.5%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	Df	P value	Association is
Pearson Chi-Square	5.534	1	0.019	Significant
Fisher's Exact Test			0.028	Significant

Table No 12) Association among study groups between Age & hs-CRP

hs-CRP		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
Low Risk	Count	0	11	11
	Percent	0.0%	6.8%	5.5%
Average Risk	Count	11	44	55
	Percent	28.9%	27.2%	27.5%
High risk	Count	27	107	134
	Percent	71.1%	66.0%	67.0%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	2.731	2	0.255	Not significant

Table No 13) Association among study groups between Age & Total Cholesterol

Total Cholesterol		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
Normal	Count	26	127	153
	Percent	68.4%	78.4%	76.5%
Raised	Count	12	35	47
	Percent	31.6%	21.6%	23.5%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	1.703	1	0.192	Not significant
Fisher's Exact Test			0.206	Not significant

Table No 14) Association among study groups between Age and No. of coronary arteries involved

No. of coronary arteries		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
0	Count	4	6	10
	Percent	11.4%	3.9%	5.3%
1	Count	14	44	58
	Percent	40.0%	28.8%	30.9%
2	Count	13	47	60
	Percent	37.1%	30.7%	31.9%
3	Count	4	56	60
	Percent	11.4%	36.6%	31.9%
Total	Count	35	153	188
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	10.200	3	0.022	Significant

Table No 15) Association among study groups between Age and complication

Vessel		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
LAD	Count	21	119	140
	Percent	60.0%	77.8%	74.5%
LCX	Count	10	78	88
	Percent	28.6%	51.0%	46.8%
RCA	Count	10	80	90
	Percent	28.6%	52.3%	47.9%
LMCA	Count	3	7	10
	Percent	8.6%	4.6%	5.3%
Total	Count	35	153	188
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	3.410	3	0.451	Not significant

Table No 16) Association among study groups between Age and Death during hospital stay

Complication		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
Acute pulmonary edema	Count	7	25	32
	Percent	18.4%	15.4%	16.0%
Cardiogenic shock	Count	3	9	12
	Percent	7.9%	5.6%	6.0%
Arrhythmias	Count	0	10	10
	Percent	0.0%	6.2%	5.0%
No complications	Count	28	118	146
	Percent	73.7%	72.8%	73.0%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is
Pearson Chi-Square	2.800	3	0.576	Not significant

Death during hospital stay		Age(yrs)		Total
		Less than 40 Yrs	More than 40 Yrs	
No	Count	34	151	179
	Percent	89.5%	93.2%	89.5%
Yes	Count	4	17	21
	Percent	10.5%	10.5%	10.5%
Total	Count	38	162	200
	Percent	100.0%	100.0%	100.0%

Chi-Square Test	Value	df	P value	Association is

Pearson Chi-Square	**2.831**	**3**	**0.418**	**Not significant**

DISCUSSION

-Among total 200 patients, 38 (19%) were young and 162 (81%) were old i.e. more than 40 yrs of age.

-Majority of the patients (55%) were in the age group between 41 to 60 years.

-Mean age was 53.25 years (+12.45). Mean age in younger group was (36.02) and in older group, it was (57.16) years.

-In young patients group, out of 38, 11(28.9%), 8(21.1%), 19(50%) were NSTEMI, STEMI and UA respectively. For patients more than 40 yrs, these figures were almost the same i.e. 41(25.3%), 34(21%), 87(53%). Thus most common form of ACS in both age groups was UA, next being NSTEMI.

-Amongst 200 patients, hypertension was found in 52.5% patients, while 42% patients were diabetic. 40.5% patients had tobacco consumption, while family h/o CAD was seen in 22.5% patients. 27.5% patients were found obese. Overall, most common risk factor was found to be hypertension (52.5%). Among young age group, it was tobacco consumption (65.8%), while among old age group, it was hypertension (58%).

-In young patients, 11 (28.9%) were hypertensive, while in old patients 94 (58%) were found hypertensive and statistically this difference was found to be significant. Thus hypertension was more important risk factor for ACS in older patients.
-Regarding DM, in young patients 8 (21.1%) and in patients more than 40 yrs age, 76 (46.9%) were diabetic.This difference in two age groups was found to be statistically significant suggesting DM was more important risk factor for ACS in older patients.

-In young patients 25 (65.8%) and in older 56(34.6%) were consuming tobacco (chewing/smoking/both). This difference in the incidence was found statistically significant suggesting tobacco playing role in ACS pathogenesis more in young as compared with old.

-Family history of coronary heart disease was present in 17(44.7%) young patients; while in patients more than 40 yrs of age, 28 patients out of 162(17.3%) had family h/o CAD. This difference was found statistically significant indicating family history plays more role in young ACS patients when compared with those more than 40 yrs of age.

-The distribution of the patients in young group as per BMI, less than 24.9, 25 to 25.9, 30 to 34.9,35 to 39.9 and more than 40, was 9(23.7%),18(47.4%),10(26.3%),0 and 1(2.6%) respectively. In second group aging more than 40 the results were 37(22.8%), 81(50%), 39(27.2%), 5(3.1%) and 0 respectively.Thus in both the age groups most of the patients were of overweight category (BMI 25-29.9).

-Serum homocysteine levels were increased in 87 out of 200 patients in the study (43.5%). Amongst the two study groups it was increased in 23(60.5%) young patients and in 64 (39.5%) patients older than 40 yrs. This difference in two study group was found statistically significant indicating that serum homocysteine plays role in ACS pathogenesis more at younger age.
-Among the study group high risk hs CRP was seen in 134 (67%) patients. Distribution of low, moderate, high risk hs CRP in young and old ACS patient was 0%, 28.9%, 71.1% and 6.8%, 27.2%, 66% respectively. Thus in both age groups, most of the ACS patients had high risk hs CRP levels and there was no significant age wise difference.

-In our study, 47 patients out of 200 (23.5%) had elevated cholesterol levels distribution of which among young and old ACS patient was 12 (31.6%) and 35 (21.6%) respectively. Thus frequency of hypercholesterolemia in young and old wasn't found different statistically.

-Among the young patients most common angiographic diagnosis was single vessel disease (36.8%) followed by double vessel disease (34.2%) whereas normal coronaries were seen in 10.5% of young patients.
-In patients older than 40 yrs, most common angiographic diagnosis was triple vessel disease (34.6%) followed by double vessel disease (29%) whereas normal coronaries were seen in just 3.7 % patients. This difference in angiographic finding in these two age groups was found statistically significant.
However, in 12 patients, angiography could not be done because of death.

-Among total 200 patients, complications were seen in 54(27%) patients, in which distribution of young and old patients was10 (26.3%) and 44 (27.2%) respectively. Distribution of complications i.e. acute pulmonary edema, cardiogenic shock and arrhythmias in young and old patients was 7(18.4%), 3(7.9%), 0 and 25(15.4%), 9(5.6%), 10(6.2%).However the difference in two age groups was not statistically significant.

-Out of 200 ACS patients included in the study, 21 patients (10.5%) died during hospital stay. The proportion of expired patients was same (10.5%) in young and old age group.

CONCLUSION

- The prevalence of acute coronary syndrome (ACS) was more in elderly population.
- In both the age groups, Unstable angina was the most common form of ACS.
- Overall, most common risk factor was found to be hypertension. Among young age group, it was tobacco consumption, while among old age group, it was hypertension. Tobacco consumption, family h/o CAD, hyperhomocysteinemia were found significantly higher among young ACS patients as compared to old. While hypertension and diabetes mellitus were more prevalent in older age group. Metabolic syndrome was equally prevalent in both the age groups. Maximum no. of patients had more than one risk factors.
- Hs CRP was found as an important risk factor for ACS in both the age groups. Most of the patients had high risk hs CRP values. The correlation of hs CRP with age and no. of coronary arteries affected was not found statistically significant. However, hs-CRP played an important role in predicting mortality in coronary artery disease.
- Inferior wall MI was more common at younger age, while anterior wall MI was more common at older age.
- The most common angiographic finding in young population was single vessel disease, while in elderly population; triple vessel disease was most prevalent. Most common coronary artery involved was LAD. Majority of the patients who died had triple vessel disease indicating poor outcome with triple vessel involvement.
- Prevalence of complications in ACS like acute pulmonary edema, arrhythmia and cardiogenic shock was equally seen in both the age groups, commonest was acute pulmonary edema. However, the most common mode of death in young patients was cardiogenic shock, while in old patients, it was acute pulmonary oedema.
- Mortality rate as well as mean duration of hospital stay did not differ in both the age groups. In young as well as in old patients, most common cause of death was STEMI.

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