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Original Research Article

Comparing the risk factors of coronary artery diseases in patients with stenotic and ectatic lesions

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ABSTRACT

Background: Coronary artery ectatic usually have relation with hyperlipidemia, systemic hypertension and male gender and its diagnosis done by angiography. Due to lack of proved risk factors for incidence of coronary artery ectatic lesions and also its important. The aim of this study was to compare the risk factors of coronary artery in patients with ectatic and stenotic lesions.
Methods: This is a descriptive and analytical study that has been done on 300 patients hospitalized in Ardabil city hospital. Patients were enrolled according to the criteria and undergone to angiography. According to result of angiography, patients who have ectatic lesions as the first group and patients whose lesions were stenotic were named as the second group. Information obtained from patients entered in the checklist and analyzed by statistical methods in SPSS.16.
Results: 22% of patients with ectatic lesions and 78% with stenotic lesions in patients with ectatic lesions. The mean age was 58.7 years and 74.2% were male and in patients with lesions stenotic the mean age was 60.7 years and 54.3% were male. Based on angiography results, in patients with ectatic lesions 42.4% have engaged in a carotid and 44.4% were two clashes coronary arteries in group stenotic. 34.7% of patients have history of previous mi, 32.9% history of coronary artery disease, 54.7% history of smoking, 56% had diabetes mellitus and 56% had hypertension. History of previous MI (p=0.028), smoking (p=0.04) and diabetes mellitus (p=0.001) and history of coronary artery disease are effective risk factors in two groups.
Conclusions: The results showed that previous history of myocardial infarction, smoking and DM have significant relation with type of lesions.

Keywords: Ectatic vascular lesions, Stenotic vascular lesions, Coronary artery disease

INTRODUCTION

In the start of 20th century, heart diseases are the causes of 10% all deaths in world which this rate increased to 50% in the start of 21th century in developed countries and 25% in developing countries. It was predicted that until year 2020 heart diseases will due to 25 million deaths in year.[1-2]

Half of the deaths caused by cardiovascular diseases directly caused by coronary artery lesion and 20% were due to stroke. Coronary artery disease in mostly cases caused by atherosclerosis process.[3]

Coronary artery aneurysm is an aneurysm (more than 1.5 times the diameter of the arteries), which is also called coronary artery ectatic as the majority of aneurysms have atherosclerotic resource.[4]

Coronary artery aneurysm usually creates when the atherosclerosis leads to narrowing or obstruction of the vessel lumen and as a result of the pressure on the vessel wall, the vessel dilation occurs.[5]

Coronary artery aneurysm usually diagnosed by angiography done for all patients with other heart ischemic diseases and coronary artery ectatic have relation with hyperlipidemia, systemic hypertension and male gender. There isn't exact relation between aneurysm size and other heart diseases risk factors.[6]

Of 5.3 million patients which yearly referred to emergency with chest pain in America about third hospitalized by UA or USTEMI diagnosis that is the prevalent reason for hospitalization.[7,8]

Also in Iran heart diseases are the prevalent causes of deaths and about 46% of deaths due to heart diseases.[9]

Yearly about 3 million people only hospitalized in hospitals of ministry health and most of them have acute coronary syndrome (ACS).[10]

ACS includes myocardial infarction with elevated ST segment (STEMI), myocardial infarction without elevated ST segment and unstable angina.[7,8]

Acute myocardial infarction is one of the most diagnoses in hospitalized patients in developed countries hospitals which annually about 650000 AMI new cases occur in USA. Although the rate of AMI is about 30% that more than half of them occur before patient reach to hospital.[7]

it is expected that by increasing the age of population, obesity, type 2 diabetic, heart diseases risk factors and the rate of heart diseases will be increased in future. However, heart diseases simply and completely predictable.[11]

The aim of this study was to compare coronary risk factors in patient with stenotic and ectatic lesions.

METHODS

This is an analytical descriptive study that has been done on 300 patients undergone to angiography in Ardabil city hospital during 2012-2015. The inclusion criteria was observe at least clogged arteries more than 50% in one artery and Ectatic in coronary arteries in result of angiography. Patients complete the consent form and necessary data completed by a checklist includes information such as demographic data, cause of hospitalization, cause of angiography (MI,S/A,U/A), history of fitness test, history of MI, thallium scan and existence of coronary risk factors.

Based on angiography results, all patients divided in two groups with stenotic and ectatic lesions. The significant level set as $p<0.05$. Collected data analyzed by statistical methods in SPSS.16.

RESULTS

Of all patients referred to angiography 22% have Ectatic lesions and 78% have stenotic lesions. 74.2% of Ectatic patients and 54.3% of stenotic patients were male and rests of them were female. The mean age of patients in actasia group was 58.7±10.9 and in stenotic group was 60.7±11.6. Results showed that the mean weight and high of patients in ectatic group was more than stenotic group but the BMI in two groups was similar. The mean of referral number to hospital in actasia patients with 1.92±1.1 was similar to stenotic group with 1.93±0.98. The most reason for hospitalization patients was chest pain and in other ranks was shortness of breath, palpitations and sweating. The incidence of myocardial ischemic in 22.7% of ectatic patients and 9% of stenotic patients was indicator for doing angiography in patients (Figure 1).

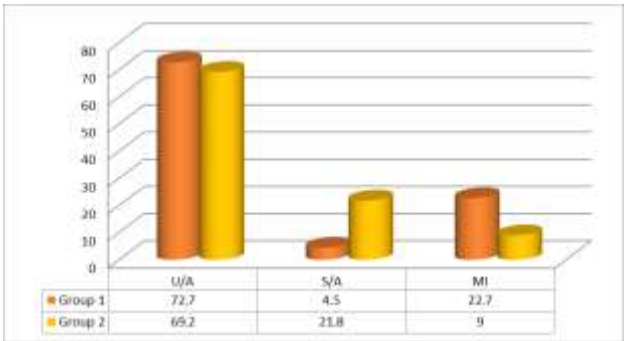

Figure 1: Frequency of patients in two groups by angiography results.

Most of ectatic patients (42.4%) had involvement in one artery and in Stenotic group (44.4%) have involvement in two arteries. 36.4% of ectatic patients and 22.6% of stenotic patients have history of positive fitness test. 22.7% of ectatic and 12% of stenotic patients have history of MI. 43.9% of Ectatic and 32.9% of Stenotic patients have history of heart disease.

68.2% of ectatic and 54.7% of stenotic patients have smoking consumption which was significant difference between two groups. There was not significant relation between lesions incidence and HTN.

9.1% of ectatic and 32.5% of stenotic patients have history of diabetes mellitus which was significant difference between two groups. Cholesterol level and LDL in ectatic group was significantly more than stenotic group and the hdl level in stenotic group was more than ectatic group. However, the level of triglyceride in two groups was similar (Table 1).

There wasn't relation between EF and lesion types. In this study the rate of MI history in ectatic group was

more than stenotic group and diabetes had the least frequency in ectatic group.

Table 1: Lipid profile in patients in two groups.

Variables	Groups	Mean	SD	P value
Cholesterol	Ectasia	183.13	53.5	0.007
	Stenotic	162.94	53.3	
LDL	Ectasia	112.07	41.23	0.001
	Stenotic	88.51	37.3	
HDL	Ectasia	35.39	12.34	0.003
	Stenotic	41.48	15	
Triglycerid	Ectasia	137.03	63.6	0.64
	Stenotic	142.45	87.6	

DISCUSSION

22% of patients have ectasia and 78% stenotic lesions and the difference between two groups was significant (p=0.01).

The mean age of patients with ectasia lesions was 58.7 and 74.2% were male and the mean age of patients with stenotic lesions was 60.7 and 54.3% were male.

In amirzadeghan and et al study, 90% of patients have stenotic and 1.5% ectasia lesions which 71.1% of patients with stenotic and 74.8% with ectasia were male and the relation between type of lesions and sex was not significant.[12]

In our study most of patients with ectasia lesions were male (p=0.004) but in stenotic group the difference between two sexes wasn't significant.

In Bermudez and et al study, 3.39% of patients have ectasia lesions and based on more prevalence of this diseases in male, the male gender represented as a risk factor for CAE incidence.[13]

In other studies the lowest lesions are ectasia and most of patients with ectasia lesions were male.[14-18]

In compare the frequency of ectasia lesions in this study with other studies results showed that the incidence of this lesion in our study was more than other studies which can be related to type of patient's selection and sampling method in this study. The mean age of patients in our study was similar to other studies and the diagnosis of ectasia lesions in 5-6 decades of life was more than other decades. Also, we resulted that the rate of male gender in our study was similar or may be a few lower than other studies. We resulted that 42.4% of patients in ectasia group have involvement in a vessel and 44.4% of patients in stenotic group have involvement in two vessels which in line with Amirzadeghan and Yilmaz study.[12,17]

Amirzadeghan and et al in a study revealed that BMI and EF in ectasia group and diabetes mellitus and MI history in stenotic group significantly was more than other group and there wasn't significant relation between type of lesions and BMI, Hypertriglyceridemia, history of heart diseases and HTN.

In our study, the type of lesions cannot have a significant impact on EF rate but similar to our study in Amirzadeghan and et al study, BMI and EF in ectasia group and diabetes mellitus and heart diseases history in stenotic group was increased compare to other group and there wasn't significant relation between type of lesions and hyperlipidemia, HTN, smoking and CAD history.[12]

Hoseini and Zeina in studies showed that there wasn't any known risk factor for incidence of ectasia lesions and in our study there was many effective risk factors for incidence of ectasia lesions.[19-20]

Sudhir and et al in a study showed that only increasing cholesterol, LDL and HDL in blood could increase the incidence of ectasia lesions and there wasn't relation between type of lesions and diabetes, HTN, smoking and family history of CAD.[21]

In our study, the cholesterol disorders have significant effect on the ectasia lesions but other risk factors such as smoking have involvement. Williams and et al in a study showed that hyperlipidemia, hypertension and smoking could not increase the incidence rate of Ectasia lesions and vice versa the incidence of diabetes significantly could decrease the incidence of coronary lesions.[22]

Giannoglou and et al in a study showed that there was a negative correlation between diabetes and disease incidence in patients with coronary ectasia lesions.[15]

Nyamu and et al in a study showed that between patients with ectasia lesions about 25% have history of MI, 46.2% have cholesterol profile disorder, 42% have hyper Triglycerides and 12% have diabetes mellitus.[23]

In our study, among ectasia patients 22.7% have history of MI and 9.1% have diabetes mellitus. In Demopoulos and et al study, the rate of MI history and smoking use in patients without ectasia lesions was more than other patients and there wasn't significant relation between coronary lesions with CAD history, HTN, DM and yperlipidemia.[18]

Yilmaz and et al in a study showed that, there was significant relation between coronary ectasia lesions with HTN as a heart risk factor and there wasn't any significant relation between DM, smoking consumption, MI history and hyperlipidemia.[17]

Bermúdez and et al in a study showed that, there was significant relation between smoking use and incidence of ectasia lesions and the incidence of DM in ectasia patients significantly lower than healthy people but there

wasn't significant relation between HTN, Hyperlipidemia and MI history.[13]

In compare the heart risk factors in other study with our study results showed that similar to many studies DM in patients with ectasia lesions have lower frequency than other risk factors. In study of other risk factors, given that the main risk factor in the development of each study was different, so it cannot be argued about its importance in the incidence of coronary artery ectasi lesions.

CONCLUSION

Results showed that history of MI known as a main risk factor and DM as a protective factor which can be mentioned in the incidence of coronary artery ectasia. Also there was significant relation between history of MI, smoking use and DM with type of coronary artery lesions and doing more studies in future for study other risk factors is necessary.

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