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Comparison of Risk factors & Clinical and Angiographic characterization of STEMI in young Adults with Older patients

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ABSTRACT

Myocardial infarction(MI) is a life threatening of coronary events that can present itself by sudden cardiac death (SCD).this entity present usually in patients with 45 years old or more, but sometimes accrue in young men and women in lesser ages. In previous studies there was 2-4 % prevalence of myocardial infarction contribute to ages less than 40 years old. Fortunately it is not common entity in young people. But morbidity, emotional pressure and stress, and economic injuries .regarding of increase in recent incidence of this entity in young people made us to investigate and evaluate risk factors and difference and similarities of myocardial infarction between young and older ages hoping to this data assist us in primary and secondary preventions in this young group people that suffered from MI. 100 young patients less than 40 years old and 100 patients with more than 40 years old, that referred to Golestan and Imam Hospital od Ahvaz cardiac center, patients of two groups underwent routine therapeutic protocol for All of them coronary angiography(CAG) and echocardiography was done. All of them risk factors consist of (diabetes, hypertension, smoking and familial history) assessed. Their Para clinic data and angiographic and echocardiographic events compared in 2 groups. Our results show that risk factors such as Diabetes, hypertension and hyperlipidemia is more important risk factors in ages more than 40 years old with MI , wears smoking and positive familial history for ischemic cardiac events play more important role in young people less than 40 years old.

Keywords: myocardial infarction, age, risk factors

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INTRODUCTION

Even rate of mortality due to cardiac event reduced in the last decades, but yet the major all-cause mortality is cardiovascular event even in developed countries. Myocardial infarction is fatal presentation of coronary disease that present itself in sometimes as sudden cardiac death. Usually it occurs in 45 years and older. But sometimes occurs even in young men and women (2).it is presumed that cutoff point of 40 years old described as MI in young patients. Etiology of MI in older ages referred to traditional risk factors as diabetes, hypertension, and hyperlipidemia (3) MI is estimated about three to twelve percent in youth less than 40 years old in recent researches.(4,5).showed that incidence of MI in young patients almost always accompanied with at least one risk factor such consist of smoking, familial history, dyslipidemia, hypertension and diabetes or even obesity.(6)process of MI in young people maybe be different from old patients that recognition of this differences may be helpful for prognosis and prevention.(7) population young people is the main purpose group for prevention AL strategies. Despite of this, risk factors, prognosis and presentation of MI may be differing in younger patients from older group. We intend to evaluate comparison of risk factors, angiographic findings and other Para clinic data in patients in the two spectrum of age.

MATERIAL AND METHODS

In this observational study**,** 200 patients that 100 of them were 40 years old and less, and rest of them was more than 40 years old that presented with ST elevation myocardial infarction referred to cardiac center of Ahvaz city in Golestan and Imam Hospitals enrolled the study. Diagnosis of MI was upon these criteria: typical chest pain, electrocardiogram abnormality such as S-T segment elevation and new left bundle branch block and elevated cardiac enzymes such as creatine kinase MB and troponin. Patients with post-traumatic MI or pericarditis excluded the study. Patients underwent routine treatment for MI. all of them evaluated about angiographic findings, echocardiographic evidence and Para clinic data and risk factors registered in questionaries' and intra admission mortality and complication and two groups were compared finally about this features.

Statistical analysis

For description of quantities data, we used median indicator and for qualitative data percentage indicator was used. Comparison between two crowds was done upon t test. Chi-square test was used for quantitative data's. We used SPSS software in version of 22 for data analysis.

RESULTS

200 patients studied youngest were 23 and oldest were 87 years old.79% of them were men and others were female. There was no communication between age of patients and anatomic locality of infarction(P value = 0.215).In angiographic findings left arterial descending (LAD) were most involved artery in patients more than 40 years old. Despite there were significant increase involvement of other vessels in older patients. Hypertension was in 44 % of older age while there was 20% prevalence of hypertension on younger patients less than 40 years old that was significantly more spread in older group, there was 58 % smoker in younger group while prevalence of smoking was 31% in older ages. Positive familial history for ischemic heart disease was more prevalent risk factor in younger group (p value=0.137).about 37 % of more than 40 years old had diabetes, while only 16 % of younger group had diabetes. This means that diabetes mellitus in more common risk factor in older patients that presented with MI. This increase was considerable statically. About hyperlipidemia as a risk factor we observed that 39% of older age and 18% of younger grope had this risk factor. This significant data suggest that hyperlipidemia is more common risk factor in patients with 40 years old that presented with MI. There was no marked difference in coronary anomalies between two crowds. In patients that had not any risk factor for cardiac events; there were no differences between incidents of myocardial infarction. On vessel disease in CAG finding was more common in youth while patients with more than 40 years old two or three vessel involvement was more prevalent in angiographic findings. One of the most apparent differences between two groups were thrombosis, there was only 1% prevalence of thrombosis as a risk factor of MI in older group , but this value was common in 14% of patients in younger group.(p value = 0.001). Otherwise there were no differences about happening of neglected MI between two groups. (All of these data statically exhibited and summarized in table 1.

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Table 1: comparison of risk factors and angiographic findings between 2 groups

Evaluated options	less than 40 years old	More than 40 years old	P value
LAD involvement	55.1	76.2	0.002
LCX involvement	20.4	47.5	0
RCA involvement	39.8	55.4	0.027
HTN	20.2	44.6	0
smoking	58.6	31.7	0
FAMILY HISTORY	13.3	6.9	0.137
HLP	18.2	39.6	0.001
DM	16.2	37.6	0.001
CORONARY ANOMALY	3	1	0.074
NO RISK FACTOR	11.1	10.9	0.96
ONE VESSLE	57.1	33.7	0.001
TWO VESSLE	13.3	33.7	0.001
THREE VESSLE	11.2	26.7	0.005
TROMBOSIS	14.1	1	0.001
NEGLECTED MI	6.1	4	0.496
INF MI	42.3	31.7	0.215
ANT MI	48.5	50.5	0.215
POST or LAT MI	3.1	7.9	0.215
ANT+INF MI	6.2	9.9	0.215

DISCUSSION

Our research was an observational study, that performed in Cardiac center of Ahvaz university in 2015.we found that there is apparent differences in risk factors and presentation and angiographic data's in patients that suffered from MI in 2 spectrum of ages more than 40 years old and lesser. Yen-Chen Lin and et al in 2010 showed that excess BMI and hypercholesterolemia had no effect in increasing of chance of incidence of MI, while low HDL, smoking, diabetes and hypertension had significant impact on chancing of MI regardless of senile category. This finding was different to our study, so that in our research hypercholesterolemia increase risk of incidence of MI, and this increase was more apparent in older group. That is necessary to said that small amount of size of this study and no respecting to familial history of cardiac disease as an confounding factor were two important limitations of this Taiwanese study than our research(8). In 2015 Ewa M. Maroszyńska-Dmoch and et al showed that about 61 percent of young people in their angiographic findings had one vessel involvement with superiority of LAD and in second ranking RCA artery. This finding was compatible with our study about number and region of involvement. But in assessment of risk factors this study suggest that the most powerful risk factors was hyperlipidemia, smoking and BMI more than 25 with accompanied with increasing risk OF MI , while in our study only smoking was a forcible risk factor with superiority in young ages(9) despite ,in another study that was done by Ali Ahmadi1 and et al in Iran in 2014,showed that risk factors consist of diabetes, hypertension ,smoking and hyperlipidemia be attendant with significant increase of incidence of MI, this study was with greater sample size than our research and had cohort shape study with more reliability, but in this study only relation between risk factors of MI was assessed and group ages and relation of each risk factors with an specific age spectrum, was non intentioned(10).finally mentioned that limitations of our study were little sample size and considering hyperlipidemia as a single disorder overall and not to categorized it in shape of Hypertriglyceridemia, hypercholesterolemia and et al as separated risk factors that each of them may be had a distinct impact impression as an independent risk factors.

CONCLUSION

This data suggest that diabetes, hypertension and hyperlipidemia is more common risk factors for myocardial infarction in older patients more than 40 years old while smoking and familial history are more important for MI in patients less than 40 years old. Otherwise involvement of two or three vessel disease upon angiographic finding is more common in older patients versus one vessel disease in younger patients.

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REFERENCES

[1] Rosamond W, Flegal K, et al .Heart disease and stroke statistics- 2008 update ; a report from the American Heart Association Statistic Committee and Stroke statistics committee. Circulation 2008, 117; E25

[2] Fournier JA,Quero J, Fernandez CortaceroJAP.Myocardial infarction in men aged 40 years old ir less; A prospective clinical angiography study.ClinCardiol 1996; 19:631-636

[3] Klues HG, Schwartz ER, Vom Dahl S, ET al.Disturbedintera coronary hemodynamics myocardial Bridging: early normalization by intra coronary stent placement. Circulation 1997; 96:2905-13

[4] Mukherjee D, Hsu A, Moliterno DJ, et al. Risk factors forpremature coronary artery disease and determinants of adverseOutcomes after revascularization in patients _ 40 years old. *Am J Cardiol*2003; 92:1465-7?

[5] Doughty M, Mehta R, Bruckman D, et al. Acute myocardialinfarction in the young: the university of Michigan experience. *A Heart J* 2002; 143:56-62.

[6] Lange RA, Hills CD.Cardiovascular complications of cocaine use.NEngl J Med 2001; 17

[7] Jamil G, Jamil M, Alkhazraji H, Haque A, Chedid F, BalasubramanianM,Khairallah B, Qureshi A: Risk factor assessment of young patients withST-segment elevation myocardial infarction. Am J Cardiovasc Dis 2013, 3(3):170–174.

[8] *Yen-Chen Lin,1 Lung-An Hsu,1 Yu-Shien Ko,1 Chi-Tai Kuo,1 Wei-Jan Chen,1 Chia-Pin Lin,1Wen-Harn Pan2 and Chi-Jen Chang1* .Impact of Conventional Cardiovascular Risk Factors on Acute Myocardial Infarction in Young Adult Taiwanese.ActaCardiol Sin 2010; 26:228_34; 2_34

[9] Ewa M. Maroszyńska-Dmoch, BeataWożakowska-Kapłon. Coronary artery disease in young adults: clinical and angiographic characterization.A single centre study. 10.5603/KP.a2015.0178

[10] Ahmadi A, Soori H, Mehrabi Y, Etemad K. Spatial analysis of myocardial infarction in Iran: National report from the Iranianmyocardial infarction registry. J Res Med Sci 2015; 20:434-9.