Original Article

Average Ischemia Time in Non ST Elevation MI vs ST Elevation MI among Local Population of Pakistan

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ABSTRACT

Objective: To analyse the average ischemia time in Non-ST-elevation myocardial infarction in comparison of ST-elevation myocardial infarction among local population of Pakistan.
Study Design: Comparative Study
Place and Duration of Study: This study was conducted at the Allama Iqbal Memorial Teaching Hospital Sialkot during June 2020 till December 2020.
Materials and Methods: The data was collected 100 patients of both genders. The data was divided into two groups.
Results: The data was collected from 100 patients. The mean age of the patients was 51.3 ± 11.5 years in STEMI patients and 57.4 ± 9.4 in NSTEMI. 45 (45%) have diabetic history with STEMI and 55 (55%) with NSTEMI patients. 81 (81%) have smoking history and 17 (17%) have family history of CVD with STEMI. All the data is represented in table 1.
Conclusion: It is concluded that there is no difference among the heart rate variability indices in Ischemic heart disease, MI, age group and gender.

Key Words: Acute, Risk, Score, Patients, Hypertension

Citation of article: Hassan Z, Saleh MA, Bhatti A. Average Ischemia Time in Non ST Elevation MI vs ST Elevation MI among Local Population of Pakistan. Med Forum 2021;32(4):63-66.

INTRODUCTION

Coronary heart diseases is a major disease causing significant mortality and long term complications in patients. It is a term that demonstrate a range of illnesses going from angina uptill ST-portion rise myocardial dead tissue. Cardiovascular danger factors for ischemic heart sickness and AMI are on the ascent in Pakistan [1]. 18% of grown-up population experiences hypertension, smoking and tobacco use has expanded and weight is expanding. 16.2% men and11.7% ladies have diabetes mellitus while another 8.2% men and 11.7% ladies have debilitated glucose resilience [2]. With expanding opulence and offices of life, there is a clear change in way of life and there is increasingly more inclination for inactive propensities. Exercise and open air exercises appear to have diminished. As an outcome, cardiovascular illnesses like myocardial dead tissue and stroke have become the main sources of bleakness and mortality in Pakistan [3].

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Received: October, 2020
Accepted: December, 2020
Printed: April, 2021

Heart rate variability (HRV) has been known as a measurable parameter of the cardiac autonomic function. The cardiac autonomic innervation is heterogeneous and hence leads to different patterns of autonomic modulation [4]. The normal pattern of autonomic modulation is altered in the case of myocardial infarction, the pattern of alteration is not uniform, and it depends on the infarcted wall or region of the heart. This altered autonomic modulation starts within a few hours after the acute event [5]. In ST-segment elevation myocardial infarction (STEMI) patients, cardiac autonomic modulation is predominantly characterized by activated sympathetic and withdrawn parasympathetic activity in the early hours after STEMI. It is worth mentioning that this autonomic modulation shows a difference according to the location of the infarction, with the inferior/posterior/right ventricular infarctions showing a more pronounced vagal/vaso-depressive response while the anterior infarctions showing a more pronounced sympathetic response [6].

An anterior wall myocardial localized necrosis otherwise called foremost divider MI, or AWMI, or foremost ST section height MI, or foremost STEMI happens when foremost myocardial tissue normally provided by the left front sliding coronary conduit endures injury because of absence of blood supply [7]. At the point when an AWMI reaches out to the septal and sidelong areas too, the guilty party sore is typically more proximal in the LAD or even in the left principle coronary supply route. This enormous front myocardial dead tissue is named a broad foremost [8].

MATERIALS AND METHODS

This comparative study was conducted in Allama Iqbal Memorial Teaching Hospital Sialkot during June 2020 till December 2020.

Sample Size: The data was collected from 100 patients of both genders. Sample size is calculated with 95-96% confidence level, 4-5% margin of error and taking expected percentage of sensitivity of 92.3% with margin of error 5%and specificity 100%.

Inclusion criteria:

- Age 20 to 60 years
- Patients with symptoms of ischemia.
- History of coronary artery disease.

Exclusion criteria:

- Those who are not willing to participate in this study.
- Those having abnormal cardio biomarkers.
- Non-cardiac trauma and non ischaemic cardiomyopathy

Data Collection: After acceptance from Ethical Committee and higher board of study, and then after taking informed, written consent, patients was enrolled for data collection. The data was collected 100 patients of both genders. The data was divided into two groups.

Group A: Patients with diagnosis of NSTEMI

Group B: Patients with STEMI

The acute risk of the in-hospital mortality and the assignment to the respective risk groups was calculated prospectively for these patients using the online calculator. Patients were divided into three parts according to risk score, low score, and intermediate and high risk score. All patients of anterior and inferior wall ST elevation myocardial infarction got thrombolytic therapy.

Statistical Analysis: The statistical analysis of data was performed using SPSS version 19**.**

RESULTS

The data was collected from 100 patients. The mean age of the patients was 51.3 ± 11.5 years in STEMI patients and 57.4 ± 9.4 in NSTEMI. 45 (45%) have diabetic history with STEMI and 55 (55%) with NSTEMI patients. 81 (81%) have smoking history and 17 (17%) have family history of CVD with STEMI. All the data is represented in table 01.

Patients with NSTEMI were more established than those with STEMI, and introduced all the more regularly history of hypertension, past MI and coronary revascularization techniques, and clinical indications of metabolic disorder. Patients with NSTEMI had more noteworthy number of basic coronary stenosis, revascularization was all the more regularly deficient, and such patients introduced all the more frequently with side effects of cardiovascular breakdown on beginning admission to the coronary care unit.

Table No.1: Demographic data of patients with ST-elevation myocardial infarction and non-ST-elevation myocardial infarction

	STEMI	NSTEMI	P^2
Age, years	51.3 ± 11.5	57.4 ± 9.4	
Cardiovascular risk factors			
Diabetes, n (%)	45 (45%)	55 (55%)	0.045
Hypertension, n (%)	34 (34)	66 (66)	< 0.001
Smoking habit, n (%)	81 (81)	19 (19)	0.001
Family history, n (%)	17 (17)	83 (83)	0.159
Previous CABG, n (%)	71 (71)	29 (29)	< 0.001
PCI, n (%)	13 (13)	87 (87)	< 0.001
AMI Previously, n (%)	21 (10)	39 (33)	< 0.001
Stroke history, n (%)	5 (2)	6 (5)	0.187
AMI characteristics			
Anterior, n	38	62	< 0.001
Inferior, n	76	24	0.002
Other, n	4	96	< 0.001
Left ventricle ejection fraction, %	46.8 ± 8.2	43.4 ± 13.1	
Patients with LVEF < 40%, n	43	57	0.005
Patient with heart failure at initial admission, n	15	75	0.002

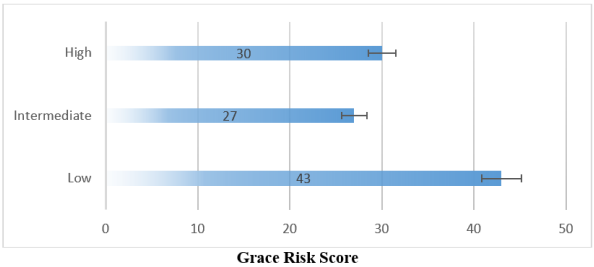
Table No.2: Different types of therapies

Therapy	STEMI	NSTEMI	P-value
Warfarin	22	78	0.401
β-blocker	89	11	0.201
Ca-antagonist	18	82	0.023
ACE-inhibitor	80	20	0.001
AT-II-antagonist	16	84	< 0.001
Statin	20	80	0.789

Table 02 shows the Grace Risk Score of patients. According to analysis 43% patients have low score, 27% patients with intermediate score and 30% patients have high Grace Risk Score. All the values are presented in table 03.

Table No.3: Grace Risk Score of selected participants (n=100)

Grace Risk score	N	% age
Low	43	43%
Intermediate	27	27%
High	30	30%



Graph No.1: Grace Risk Score

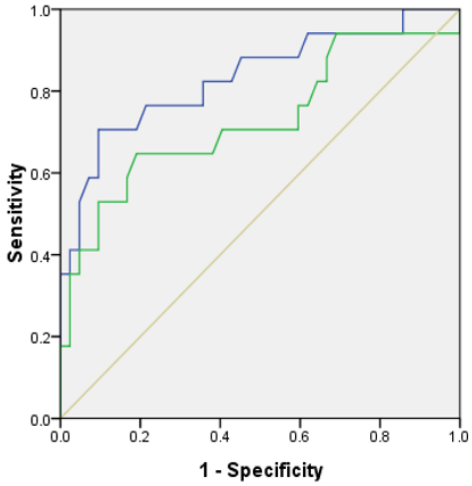


Figure 1 ROC curve of group A with NSTEMI

Figure No.1: ROC Curve of group A with NSTEMI

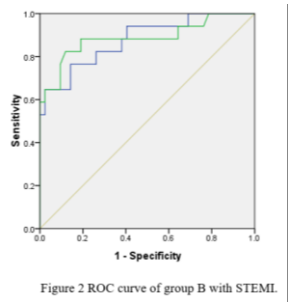


Figure 2 ROC curve of group B with STEMI.

DISCUSSION

Worldwide various long term examines have additionally assessed and approved the prescient estimation of the Grace Hazard score in NSTEMI. The GRACE Risk Score for anticipating in-medical clinic passing was surveyed in a few Acute Coronary Syndrome understanding libraries, the MINAP database [8]. Bradshaw et al found that the prejudicial limit of GRACE model was acceptable generally speaking. Fox Ka et al [9] decided expectation of danger of death and myocardial dead tissue in the a half year after introduction with Acute Coronary Syndrome by means of planned worldwide observational examination (GRACE) and discovered C-measurement of 0.81 for foreseeing demise and 0.73 for death or myocardial localized necrosis from admission to a half year after release which is similar to our investigation. This investigation likewise found that GRACE score demonstrated great prescient exactness for the consolidated endpoint of cardiovascular sicknesses or myocardial dead tissue in emergency clinic [10].

Past examinations alluded to autonomic adjustments in STEMI patients with not many really contemplating the impact of revascularization on the example of autonomic regulation. Vagal over activity is notable to be more incessant in second rate STEMI contrasted with thoughtful over activity in anterior STEMI, this can be clarified by the particular circulation of vagal afferents to the infer posterior mass of the left ventricle [11]. Accordingly, the impact of revascularization whether by essential PCI or by fibrinolysis should be related with various cardiovascular autonomic examples of recuperation relying upon the site of STEMI. Essential PCI offers the best quality level treatment by reestablishing the stream in the IRA as per the rules of treatment of STEMI, while its impact on reestablishing the ordinary autonomic regulation example stays indistinct [12].

CONCLUSION

It is concluded that there is no difference among the heart rate variability indices in Ischemic heart disease, MI, age group and gender. Grace Risk score is also considered to be the useful tool for predicting the hospital stay and death rate in NSTEMI patients.

Author's Contribution:

Concept & Design of Study:	Zeeshan Hassan
Drafting:	Muhammad Awais Saleh
Data Analysis:	Amad Ul Haq Bhatti
Revisiting Critically:	Zeeshan Hassan, Muhammad Awais Saleh
Final Approval of version:	Zeeshan Hassan

Conflict of Interest: The study has no conflict of interest to declare by any author.

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