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Outcome of Patients admitted in ICU Prognosis with Pre-Treatment MI & No Pre-Treatment MI

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Original Research Article

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Abstract: Background: Ischemic Heart Diseases causes more deaths & disability & incurs greater economic costs than almost any other illness & also psychological effect on health & mortality & mobidity can be prevented if patient are treated for hypertension/angina & life style. The study incuded 500 patients total of which 250 patients were taking treatment previously for hypertensives & some of them are also anti-anigna/diabetes (pre-treatment patients & 250 patients were not taking previos treatment for hypertension/diabetes.) ateast for 10 days prior to index episode of MI. With all relevant investigations & follow up monthly & up to 06 months regularly. 500 patients selected out of alll the patient admitteed in ICU for MI & Unstable Angina from ICU of IMCHRC, Indore for assessing the presences of Pre-Treatment MI and their prognosis with no Pre-Treatment MI over a period of last 06 months patients. Evenly the assessment of the differences between the two groups i.e. the one presenting with Pre-Treatment MI and their prognosis no Pre-Treatment MI. The patients were categories as with or without Pre-Treatment MI on the basis of the history of angina pain and/or angina equivalent within the past 7 days of the Index event period of >=2 minutes. The total there were 250 patients (Group A) & 250 patients (Group B) patients has no episode of Pre-treatment as per the criteria laid down as a part of the study protocol. Total Deaths- 82, Total CHF- 34, Hospital Readmission - 44, Total Exertional/Episodic Angina - 188. People who have Diabetes, Alcoholics, Hypertension, Prior History MI, Smoking, Tobacco Chewing, Family History added to morbidity & mortality in patients who had MI but patient who were on pre treatment showed less morbidity & mortality.
Keywords: Pre-Treatment MI, No Pre-Treatment MI.

INTRODUCTION

Cardiology is quoted as specialty of physicians the since ages have known about Coronary artery disease& its correlation with Atherosclerosis is well known. It was reported by Eliot in 1850 B.C. In 1691 Morgani associated cardiac symptom with Atherosclerosis of Coronary artery [1]. Herberden in 1768 gave the first description of Angina Pectoris though the name was first given by Senner Perry in 1783. Myocardial infarction was described by Hammer in 1878, George Dock in 1896, and Herrick in 1912. Lauder Burnton 1889 described use of Amy Nitrate in Angina.

Overview of acute coronary syndrome (ACS)

Myocardial Infarction (MI) refers to the reversible necrosis of heart muscle secondary to Prolonged ischemia. The spectrum of diseases included in acute coronary Syndromes includes STEMI, NSTEMI, unstable angina. Ischemic heart disease cause more deaths and disability [7]. Cardio vascular disease cause 12 million deaths throughout the world each year, according to the third monitoring report of the World Health Organization, 1991-93. It is predicted to become the most common cause of death by 2020 (Harrison).

Lifestyle such as Smoking, sedentary, life stress, obesity diabetes, family history of MI & Coronary artery disease, diabetes, insulin resistance [2], Hypertension, dyslipdemia are common predisposing, factors to myocardial infraction. A male predominance in incidence exists up to approximately age 70, when the gender converges to equal incidence in both but increase with age. Elderly people also tend to have higher rated of morbidity & mortality from their infarcts [3, 11, 12, 20].

MI may leads to impairment of systolic function or diastolic function & to increased predisposition to arrhythmias & other long term complications. MI is associated with a 30% mortality rate; half of the deaths occur prior to arrival at the hospital. An additional 5-10% of survivors die within the first year after their MI. Approximately half of all patients with an MI are re hospitalized within 01 year of their index event also affects other systems. Such as partial reduction in coronary flow with ot without intermittent reperfusion, streching of the left ventricular wall paid vaentricular pacing, ischemia in adjacent myccardium & reomote ischemia in adjacent myocardium & remote muscles, kidney, intestine & skeletal overall, prognosis is highly variable and depends largely on the extent of the infarct, the residual LV function, and whether the patient underwent revascularization [4, 17, 19, 20].

Interestingly, emerging evidence suggests that different cardioprotective approaches appear to recruit similar protective pathways. During the ischemic phase, cardioprotection involves transactivation of growth factor receptors, activation of membrane enzymes and metabolism of activation of the Akt pathway, stimulation of nitric oxide production and subsequent activation of protein kinase G and C, opening of Mitochondrial ATP-dependent K+ channels, inhibition of mitochondrial &cytosolic Ca2+ overloading,and release of reactive oxygen species. During the reperfusion phase, cardioprotection involves cell-surface receptors, and a diverse array of protein kinase cascades, including the reperfusion injury survival protein kinase pathways such as protein kinase G, C, and A, the MAPKfamily, thePI3K-Akt cascades,the JAK-STAT pathway, and redox signaling[5]**.** All of the signaling is now believed to lead to prevent formation of the mitochondrial permeability transition pore, Which normally kills mitochondria in the first minutes of reperfusion in theunprotected. A better understandingof the different elements within the signal transduction cascades and theff hierarchic order is of utmost importance to potentially utilize cardioprotective approaches in theclinical setting and in drug development**.**

The potential mechanisms that have been suggested include ischemic preconditioning, enhanced thrombolysis, protection-from ventricular fibrillation, reduced risk of no-reflow phenomenon, and collateral blood flow. However, the relationship between preinfarction and immune inflammatory mechanisms has not been investigated adequately[8,14,15,16]**.**

Preinfarction angina was associated with a lower incidence of arrhythmias and heart failure. Several studieshave shown a good clinical in patient with preinfarction angina, especiallywhen thrombolytic therapy was given [9]**.** The beneficial effect that was observed in studies on pre infarction angina has been explained in terms of mechanisms such

MATERIALS & METHODS

Total 500 patients selected & divided in to 02 groups a & b, a (250 patient who were taking treatment previous to index episode for hypertension /diabetes /angina). Age group above 18 years both male & females.

B (250 patients who were not taking any treatment prior to index episode of mi). All patients were clinically examined for journal & systemically relevant investigations cbc, urine, routine micoscopic rbs urea cretanine serum elctrolytes, cpk mb & troponin, lft or other relevant investigations as & when needed. Serial ecg's & 2-d ecocardiography was done. First ecg recorded was taken as best line & used for comparison in each follow up monthly & up to 06 month. All investigation repeated after 06 month or vice versa. Patient who needed cardian surgery or other surgery were dropped out were not included in the study. Vavuler heart disease not included.

DISCUSSION

During the course of this study it was observed that the patients with episodes of Pre-Treatment MI had a better prognosis as compared to the patients who had no episodesof pre infarct angina prior to presenting as a myocardial infarction.

Before using the results of this study to decipher conclusions and before comparing the results of this study to the various international studies on this subject, it would be wise to consider the basic differences in the study design as compared to the others. There were a few gross differences in the study design as compared to the other studieswhich have been done this subject as quoted under the literature review section. Asa part of the protocol this study was

RESULTS

Many of the subjects of this study had a history of prior infarction which was a significant confounding variable which could not be separated among the study subjects here. In group A presence of pre-treatment wioth anti-hypertensive & anti-anginal treatment significantly dreased the long term morbidity & mortality as compare patient in group B.

According to the assessment of the patient in gourp A had fewer incidences of LVD dysfunction & CHF as compare to patient to gourp B. The incidence of hospital re-admissions for various cardiac as well as non cardiac reasons & stay in hospital was less in gourp A as compare to patient in group B as mcuh as by 50%.

The Prevalence of higher grades of NYHA namely NYHA class 3 and class 4 was much more in gorup B as compare gourp A but incidence of NYHA class 2 was more in group A. but NYHA 1 was equal in both the gourps. (As shown in Table-1)

The incidence of arrthymias during the hospital stay showed no statistically significant difference in the two study groups. (P value.>0.05).During the course of follow up There was no record means to assess the number of patients having arrhythmias after having been discharged from the hospital & hence not included in the study for follow up.

The incidence of post MI angina was similar seen in 02 groups studied but patient in gourp B had slight more severe & long lasting pain as compare to group A & they were psychological more disturbed.

When these variables were studied along with the presence or absence of PIA we found thatseemed to significantly influence the long term prognosis of the ACS when seen as a combined variable. There was no significant difference in these variables.

Table-1: Correlation with the Prognosis

Category	Group A	Group B	Total	Significance
Total Number of Patient	250	250	500	
Death	34	48	82	P Value more than 0.05
CHF/LVD	15	19	34	P Value more than 0.05
Exertional/Episodic Angina	86	82	188	P Value more than 0.05
Hospital Admissions	15	29	44	P Value less than 0.05
NYHA1	23	24	47	P Value more than 0.05
NYHA2	130	102	232	P Value more than 0.05
NYHA3	57	60	117	P Value more than 0.05
NYHA4	9	13	22	P Value more than 0.05

Table-2: Correlation with Diseases

Category/Disease	Death		CHF/LVD		Hospital Admissions		Total	Significance
	A	B	A	B	A	B		
Diabetes	37	33	02	05	-	-	75	P Value more than 0.05
Hypertension	15	18	05	02	-	-	40	P Value less than 0.05
Prior History MI	18	16	05	04	-	-	43	P Value more than 0.05
Smoking	22	17	11	09	08	18	75	P Value more than 0.05
Alcohol	09	09	04	05	03	07	37	P Value more than 0.05
Tobacco Chewing	15	11	04	04	04	03	41	P Value less than 0.05
Family History	03	05	01	01	04	05	19	P Value more than 0.05

SUMMARY AND CONCLUSION

On the basis of the entire study as well a review of the pre-existing literature available on this I subject it could be concluded that the presence of previos treatment for angina, hypertension & well controlled diabetes & change in modification in lifestyle such as quiting alchohol, quiting tobocco chewing, smoking & slight performing slight physical activity was beneficial to reduce the risk factors associated mortality & morbidity in terms of prognosis in patients in group A. a significant risk factor for the immediate and long term prognosis of patients presenting with myocardial infarction studied over a period of 6 months in each patient as a part of protocol of this study. Here is a summary of the conclusions drawn from this study, as shown in chart A the significance of each group A & B in morbidity & mortality. Where the p value is significant in group A as compare to group B.

Hypertension as the comorbidity patients who were on anti-hypertensive during which some of the other are also anti angina effect but our study gave some protection & CHF was less severe as compare to non-Pre-treated. Death among Alcoholics, Smokers, and Tobacco Chewing were more commonly due to Hepatic & Pulmonary comorbid conditionseffect. Hypertension leading to LVF/LVDsmoking leading to RVF as compare to non-smoker diabetes. Diabetics had more complication such as Acidosis & Hyperglycemia, Diabetic, as cause of death among all cases studied so we can safely conclude that pre-treatment MI prognosis is better than non pre treatment patients & cause of death& morbidity had less death CHF readmission post MI angina. By good protection in group a as compare to patient in group B.

Hypertention leading to LVD dysfunction /CHF was more in patient who were smokers than non smoker was right sided heart failure because of

pulmonary complications. Diabetes have silent infract & complication of long standing untreated diabetes was responsible for morbidity & mortality in patients as compare to group B.

So we can safetly conclude that proper & regular treatment of diabetes & other disorder that contributes to MI can lead to better outcome than patient who are not treated previously or on irregular treatment for their disorders.

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