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Research Paper

Clinical Profile Ofconduction Blocks in Patients of acute Myocardial Infarction at Tertiary Care Hospital, Jamnagar, Gujarat, India

Medical Science

KEYWORDS : Conduction Blocks, Acute Myocardial Infarction, Complete Heart Block

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ABSTRACT

Acute myocardial infarction(AMI) is now a days leading cause of mortality n morbidity with increasing prevalence worldwide. Heart block is a disturbance of impulse conduction occurs due to Ischemic injury in acute myocardial infarction.Incidence is more common in older people and male, as AMI is more common in male.In western countries sedentary life style and obesity are more common while in our country smoking is the commonest risk factor.Hypertension and DM are also emerging risk factors.Most patients presents with chestpain,gabharaman and perspiration.Anteriorwall MI is commonly associated with intraventricular conduction block,while inferior wall MI is associated with atrio-ventricular nodal block. Though complete heart block(CHB) is more common in inferior wall MI on presentation,anterior wall MI with trifascicularblock or RBBB+LPHB progress to CHB and mortality is high in those patients.Risk of cardiac asystole is more in CHB.Left ventricular failure and ventricular tachycardia can also increase the mortality particularly in anterior wall MI. In short, Heart blocks predict the poor outcomes.These patients are better responsive to thrombolytic therapy,angioplasty or pace maker insertion.So early detection and prompt management of these patients is required to reduses mortality and morbidity.

INTRODUCTION

Acute Coronary syndromes (ACS) represents a Global epidemic,a leading cause of morbidity and mortality with increasing prevalence worldwide. Heart block is disturbance of impulse conduction occurs due to Ischemic injury in acute myocardial infarction1. It can be transient or permanent, at any level of atrioventricular or intraventricular conduction system.

When bundle branch blocks,that is more common with anterior wall, complicates acute myocardial infarction then both risk of high degree AV block and hospital mortality from sudden death increases. With introduction of intensive care and electrocardiographic monitoring for acute myocardial infarction incidence of arrhythmias has been observed very high. In recent years Physicians have become more aware of high mortality rate of complete heart block associated with acute myocardial infarction, so great attention has been paid for clinical characteristics and desirability of insertion of pacemaker in such patients3.

AIMS AND OBJECTIVES

- To study the incidence, age and sex distribution of various heart blocks in acute coronary syndrome.
- To assess the influence of location infarction on heart blocks in acute coronary syndrome.
- To evaluate the prognostic value in terms of mortality and morbidity, of various conduction blocks in acute coronary syndrome.

MATERIAL AND METHODS

Source of data:

Cases of acute myocardial infarction admitted in ICCU between JUNE 2009 to JUNE 2011 at Guru Gobindsingh Hospital, ,jamnagar were taken in the study.

Sample size: 50 patients

Method of selection:

All the patients admitted were evaluated by detailed history, clinical examination and the required investigations. The patients were observed for conduction defects for 7 days after the admission or until they stay in the hospital whichever was the earlier. Cases were selected taking in to consideration inclusion and exclusion criteria.

Inclusion criteria:

- Patients of acute myocardial infarction admitted to ICCU of G.G.Hospital.
- Diagnosis of acute myocardial infarction based on ECG, cardiac markers, chest pain.
- Diagnosis of conduction blocks based on ECG

Exclusion criteria:

- Previously known cases of conductions defects
- Patients on drugs, which may cause conductions defects, like Beta blockers, calcium channel blockers and Digoxin.
- Pump failure was considered when heart failure stage 3 or 4.when higher grade heart blocks occurred in terminal stages of cardiogenic shock then pump failure was considered as cause of death, that cases were excluded from study.

observations

1. Conduction block in acute MI was more common in older age group (sixth decade) (50%) with male:female ratio of 5.2:1
2. In this study majority of cases had the common presenting symptoms of Chest pain (98%) Gabharaman(48%), perspiration (46%).Only one patient presented without chest pain. other symptoms were vomiting (36%), palpitation (24%), dyspnoea (22%), giddiness (10%),syncope(8%).
3. Most common risk factors was ssmoking 72% (bidi/cigarette), 28% had sedentary life style, 20% were obese, 16% had HT and 10% had DM, 8% had dyslipidemia, 14% were having past history of IHD while 6% were having positive family history.

TABLE – 1 Incidence of various conduction blocks according to location of infarction

Type of Conduction blocks	Total no Cases(50)	%	Anterior-wall MI(23)	Inferior-wall MI(25)	Infr+ postr MI(2)
RBBB	04	8	03	01	00
RBBB + LAHB	03	6	03	00	00
RBBB + LPHB	02	4	01	00	01
LBBB	05	10	04	01	00
LAHB	05	10	04	01	00
LPHB	01	2	01	00	00
Trifascicular-Block	04	8	04	00	00
CHB	10	20	03	07	00
SA Block	00	00	00	00	00
1° AV Block	07	14	00	07	00
2° Type I	05	10	00	05	00
2° Type II	04	8	00	03	01

4. Table No.1 shows that in this study A.V. NODAL blocks were more common with inferior wall MI, while bundle branch

blocks were common with anterior wall MI.

5. In 23 cases of anterior wall MI, incidence of trifascicular block, LBBB and LAHB was higher (17.39%) with incidence of CHB, RBBB and RBBB + LAHB was (13.4%).
6. In 25 cases of Inferior wall MI incidence of 1o AV Block and CHB was higher (28%), 2o type I AV Block(20%),2o type II AV Block(12%).
7. Study shows incidence of RBBB+LPHB(50%), and 2o Type II AV Block(25%) in Inferior+posterior wall MI. This actually depends on extension of infarction.

Table – 2 incidence of various complications and total hospital mortality in conduction blocks with acute MI

Complications	No. of Cases	Mortality %
LVF	4	20
LVF + Asystole	1	05
LVF + V. Tach	4	20
Asystole	9	45
V.Tach	2	10
Total	20	40

8. Table No.2 shows that mortality rate due to asystole was highest (45%) Total 20 patient(40%) died in this study out of this 4 patient had LVF, 1 patient had LVF and asystole, 4 patients had LVF and vent.tach, 9 patients had asystole. 2 patients had only vent.tach.

Table – 3 Showing hospital mortality rate with various conduction block in acute MI.

Type of conduction block	No. of cases	No.of mortality	%
SA Block	00	00	00
1°AV Block	07	00	00
2° AV Block Type I	05	01	20
2° AV Block TypeII	04	03	75
CHB	10	08	80
LAHB	05	00	00
LPHB	01	00	00
RBBB	04	01	25
RBBB + LAHB	03	01	33.33
RBBB + LPHB	02	00	00
LBBB	05	03	60
Trifascicular block	04	03	75

9. Table No.3 shows that in present study CHB was having highest (80%) mortality rate followed by Trifascicular block and 2o AV block type II(75%). LBBB had higher mortality rate 50% than RBBB(25%). 1o AV block, had no mortality because these were associated with inferior wall MI, Which were transient and rarely progressed to CHB. Out of 5 patient of 2o AV block type I, 1 had progressed to CHB and died.Mortality was higher in anterior wall MI compare to inferior.
10. In this study most of the patients thrombolysed (35) ,only 4 patients were not thrombolysed because they were having fully evolved MI. 5 patients were given Thrombolysis + Atropine and 6 patients were given Thrombolysis +Atropin + Temporary pacing,most of them were having CHB.

DISCUSSION

Incidence of Acute MI is now a days increasing. Mean age of presentation was six decade with M:F ratio 5.2:1.Male are having higher risk of AMI, so risk of devolpment of conduction block is also high.

In our country, smoking is a common risk factor than others, so value is high(72%) in compare to New by kh et al7 study.Now hypertension and DM are also emerging risk factors.

Most common presenting symptom was chest pain(98%) ,followed by gabharaman(48%) and perspiration(46%).syncope was having lowest incidence (8%), similar to Abidove et al4

Intraventricular conduction defects are more associated with anterior wall MI, because it causes destruction of bundle branch. In inferior wall MI involvement of right coronary artery causes ischemia of AV node, because nodal artery is branch of right coronary artery. So A.V.nodal blocks are more common in inferior wall MI3.

Incidence of progression to complete heart block in Trifascicular and RBBB + LPHB are more because they are associated with anterior wall MI with involvement of double vessels-right coronary artery and left anterior descending.This large infarct causes destruction of distal conduction system as well as ischemia of AV node and chances of CHB are more and mortality was high. Mobitz type II block with wide QRS reflects concomitant damage to bundle branches or fascicles and hence more extensive damage so risk of progression to CHB is high. S.A.block , 1oAV block and 2o type I AV block are more commonly associated with inferior wall MI.They are transient and do not persist for more than 72 hrs and rarely progress to CHB.mortality was high in anterior wall than inferior wall MI.

In this study major cause of mortality was asystole 45%, predominantly when CHB, may be due to non availability of cathlab for angioplasty and invasive procedure for successful pacing in this institute and all patients were not in a condition to transfer them to higher centre for pacing. In present study total mortality rate was 40%. It is lower in compare to other study as we have not included the patient presented with cardiogenic sshock with conduction block. Mint Z and Katz10,1947.

CONCLUSION

Risk of developing Conduction block in acute MI increases significantly with increase in age and is more common in male compared to female. Overall incidence of conduction block,including CHB was slightly more common in Inferior wall MI than Anterior wall MI,but overall mortality was higher in Anterior wall MI with conduction block than Inferior wall MI with conduction block. AV nodal blocks were more common in cases of Inferior wall MI,while intraventricular conduction blocks were more common in cases of Anterior wall MI. Conduction blocks were complicated most commonly with LVF and most common cause of death was ventricular asystole.

Thus Conduction blocks are important predictors of poor outcome in patient with acute myocardial infarction and are associated with higher in hospital mortality and morbidity. So, early detection and prompt management of such conduction blocks is necessary to reduce mortality.

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