

Complete Heart Block after Acute Myocardial Infarction

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Introduction

Among the patients with acute myocardial infarction whose rhythm is continuously monitored 4.2 to 8.6% are said to develop complete heart block. When untreated it carries a high mortality. This paper discusses the presentation, symptomatology and the management of patients who developed complete heart block following acute myocardial infarction and treated at the Institute of Cardiology.

Material and Methods

Twenty eight patients who developed complete heart block following acute myocardial infarction were studied prospectively during a period of six months. During their stay in the coronary care unit their rhythm and haemodynamic status were continuously monitored.

Results

There were 27 males and one female, their age ranging from 34 to 66 yrs. The time interval between the onset of chest pain and admission to C.C.U. varied between 4 hrs and 72 hours. Seven patients were admitted within 4 hrs of onset of chest pain. The approximate time interval between the onset of chest pain and the onset of complete heart block is as follows:

Table I

4 hrs	- 3 pts
4 - 12 hrs	- 4 pts
12 - 24 hrs	- 5 pts
24 - 48 hrs	- 1 pt
More than 48 hrs	- 15 pts

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The following symptoms and signs were noted at the onset of complete heart block.

Table II

Syncope	6 pts - (21%)
Pre-syncope	13 pts - (46%)
Drop in the B.P.	11 pts - (39%)
LVF	2 pts - (7%)

Two patients were asymptomatic

The heart rate at the onset of complete heart block varied between 25 and 55 b/minute (mean 44 ± 11)

Table III

26 beats/min	- 1 - (4%)
26 - 40 beats/min	- 10 - (36%)
41 - 50 beats/min	- 10 - (36%)
50 beats/min	- 7 - (24%)

The systolic blood pressure (B.P.) was less than 90mmhg in twelve patients.

Eight patients has systolic B.P. between 90 and 100 mmhg. Others had a systolic BP More than 100 mmhg.

The following complications of acute myocardial infarction were noted in addition to complete heart block in these patients.

Table IV

Ventricular Tachycardia	- 01 pt.
Torsade Points	- 01 pt.
Cardiogenic Shock	- 05 pts.
Atrial fibrillation	- 01 pt.
L.V.F.	- 03 pts.
C.V.A.	- 01 pt.

Management

Twenty three patients were managed by insertion of a temporary pacemaker. Five patients were managed conservatively for the following reasons. One patient had a transient CHB, 03 patients were haemodynamically stable with heart rate more than 50 b/minute and one had a streptokinase infusion.

Reason for pacing in the other patients were

Table V

Very slow heart rate	- 19 pts
Hypotension	- 11 pts
Syncope / pre-syncope	- 13 pts
Anticipating problems	- 01 pt

Duration of temporary pacing varied between 1 hr and 192 hrs. Except five patients who had cardiogenic shock, others showed a definite improvement in their haemodynamic status, level of consciousness and L.V.F., after pacing. 03 patients had non-sustained ventricular tachycardia during pacing and one had infection of the cutdown site. 02 patients with acute inferior Q wave myocardial infarction with evidence of right ventricular infarction were given streptokinase infusion. One of these patients was paced because of a very slow heart rate. He did not have any haemorrhage.

Site of Infarction and out come

Seven patients (25%) died in this group. Five patients had cardiogenic shock and two had cardiac arrest in asystole.

Table VI

	<i>Extensive Anterior M.I.</i>	<i>Inferior M.I.</i>	<i>True Posterior M.I.</i>
Total	09	18	1
Deaths	03 33%	03 16%	1

Except one patient others were in sinus rhythm when they were discharged from the hospital. One patient who had a anterior MI had persistant CHB and warranted a permanent pacemaker insertion.

Discussion

Complete heart block after acute myocardial infarction is a serious complication. If left untreated this carries a bad prognosis. Usually it is a transient phenomenon and sinus rhythm is restored in few hours to few days time. Complete heart block can occur as an early complication or it can be delayed as long as 48 hrs after an acute myocardial infarction.

Commonest presenting symptoms and signs of complete heart block were syncope, presyncope, drop in the blood pressure and left ventricular failure. These symptoms and signs showed definite improvement after temporary pacing. Temporary pacing is a safe and effective procedure to treat complete heart block following an acute myocardial infarction. Drugs like isoprenaline infusion carries risks like ventricular arrhythmias and not recommended if pacing facilities are available.

Complications of temporary pacing are rare. Pacing seems to be a safe procedure even after streptokinase infusion but our experience is extremely limited in this aspect. Complete heart block with cardiogenic shock carries a grave prognosis carrying almost 100% mortality. Complete heart block is a common complication of inferior myocardial infarction than anterior myocardial infarction. CHB with anterior myocardial infarction carries a bad prognosis. Persistant complete heart block can occur after an anterior myocardial infarction. These patients need permanent pacemaker insertion.

REFERENCE

- Charlis, I, Haffajee., Temporary Cardiac Pacing, *Cardiology Clinic.*, 3: 4 515 November 1985.