MYOCARDIAL INFARCTION: THE PROGNOSIS OF THE ACUTE EPISODE

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In view of the magnitude of the mortality and morbidity resulting from attacks of myocardial infarction, I feel it is worth while to review the after-history of patients that are admitted to general medical wards for the treatment of this condition. Many reviews of the acute episode have been published and this report shows how little change there has been during the past 20 years.

The material studied comprised 76 episodes of myocardial infarction occurring in 73 patients admitted to one medical unit at Addington Hospital, Durban, between 1 September 1960 and 31 August 1961. All the patients who had survived long enough to be admitted to the ward were included, and all have been followed up until discharge or death. They were all White, and otherwise there was no selection of cases.

Diagnosis. The criteria on which the diagnosis of myocardial infarction was made were as follows:

1. Necropsy evidence of recent myocardial infarction (7 cases).
2. A history of typical retrosternal chest pain associated with

(*a*) ECG evidence of transmural infarction, abnormalities of the QRS complex with S-T segment elevation, and T-wave inversion (26 cases); or

(*b*) minor changes in the S-T segment and T-wave together with subsidiary evidence such as pyrexia, leukocytosis, elevation of the ESR, and increase of the serum transaminase—SGOT—(16 cases); or

(c) left bundle-branch block together with the subsidiary evidence mentioned above (5 cases).

3. An atypical history associated with ECG evidence of transmural infarction (22 cases).

Management. Most patients were kept in bed for 28 days but a few who progressed unfavourably remained there longer. A few elderly patients were nursed in chairs. Provided they felt well enough the patients were allowed to feed and shave themselves. Anticoagulant drugs were given to all unless there was a contraindication such as peptic ulcer or liver disease. Sixty-one patients who survived 24 hours or longer received these drugs. Heparin and phenindione were used and an attempt was made to keep the prothrombin index (Quick) between 40 and 50%. In most patients this was maintained but several patients were very difficult to control. Shock was treated with mephentermine, hydrocortisone and norepinephrine given intravenously. Corticosteroid drugs were used for heart block and the 'postmyocardial infarction syndrome'.[1] Cardiac failure was treated in the usual way and quinidine was used for multiple ventricular premature beats. The average length of stay in hospital was 38 days.

Sex distribution. The 73 patients included 51 males and 22 females. The average age of the males was 55 years and that of the females 64 years.

Previous infarction. A history of previous infarction was given by 30 patients (39%), 7 of whom had been taking maintenance anticoagulant drugs. Eight patients had suffered more than one previous attack.

History. Typical retrosternal pain was described by 47 patients and 20 had pain in other situations. Three patients with congestive cardiac failure denied having pain, and 6 patients were unable to give a history because of mental confusion.

Duration of symptoms. 26 patients arrived at hospital within 6 hours of the onset and another 17 between 6 and 24 hours. The other 24 patients with chest pain were admitted up to 96 hours after the onset. There was a similar mortality rate in each of these groups.

Hypertension. Previous hypertension appeared to be uncommon and a grade-III retinopathy (Keith and Wagner) was seen once only.

Cardiomegaly was assessed clinically, all chest radiographs being taken with a portable unit. Displacement of the maximum cardiac impulse beyond the midclavicular line was found in 28 patients, 10 of whom died.

Shock was defined as a fall in the systolic blood pressure below 90 mm.Hg, associated with sweating, cold extremities and cyanosis. 21 patients were suffering from shock, usually on the day of admission, and 12 of them (57%) died. Recurrent infarction complicated by shock was associated with a mortality of 77%, while the mortality for all the cases of recurrent infarction was 33%.

Pericarditis. A transient friction rub was heard in 7 cases during the first week and 1 of these patients died. Three patients had more persistent signs of pericarditis, or developed them later in the illness in the absence of evidence of extension or recurrence of infarction and were thought to be cases of the 'postmyocardial infarction syndrome'.[1]

Pulmonary embolism was recognized in 9 cases (12%) but it appeared to contribute to only 1 death. Another patient died some weeks after pulmonary infarction had been recognized.

Cardiac failure was diagnosed in the presence of left ventricular failure or in patients with engorged neck veins, gallop rhythm, oedema, and hepatomegaly. It was found in 37 patients (49%), 10 of whom died.

ECG changes. 73 records were studied. Significant abnormalities of the QRS complex with elevation of the S-T segment and inversion of the T-wave were seen in 52 tracings. Five patients had left bundle-branch block and 2 of these had recent infarction confirmed at necropsy. Sixteen tracings showed changes in the S-T segment and T-wave only, but all these patients had typical histories and other suggestive subsidiary evidence of myocardial infarction. Auricular fibrillation was found in 6 tracings, and 3 patients had transient and variable degrees of heart block. Auricular flutter was seen twice.

Associated conditions. Six patients were known alco-

holics, all of whom were gravely ill, and 3 died; jaundice was noted in 2 of these fatal cases and was thought to be due to cardiac failure and pre-existing liver disease. Two patients were known diabetics and 2 suffered from gout. The serum-cholesterol level was measured in 26 patients and was found to be above 300 mg. per 100 ml. in 8 patients.

Laboratory investigations. The white blood count, ESR and serum transaminase were estimated in most patients but, as the specimens were taken at varying times after the onset, the results have not been used to assess the severity of illness.

Deaths. The total mortality was 18 cases (24%). The average age in the fatal cases was 64 years, compared with 59 years for the survivors. Seven patients died within 24 hours of admission and another 7 during the first week; the other 4 fatalities occurred between the 8th and 42nd days. Necropsies were performed in 7 cases and recent infarction was confirmed in all. Cardiac failure was found in all 7 necropsies, pulmonary infarction in 1, rupture of the left ventricle in 1, and rupture of an aneurysm of the ascending aorta in 1. The 11 fatal cases in which necropsy was not performed all showed unequivocal clinical evidence of myocardial infarction. Two patients developed a generalized bleeding tendency while taking anticoagulant drugs and were thought to have died from intracerebral haemorrhage.

Discussion

The reported mortality from myocardial infarction varies widely,[2,3] and ranges between 10 and 40%. This variation is probably due to differences in diagnostic criteria and in case material as well as the natural history of the illness.

In this series the most important prognostic factor was a history of previous infarction. Recurrent infarction was associated with a mortality of 33% whereas only 17% of the initial attacks were fatal. Shock, cardiomegaly and cardiac failure were also associated with an increased mortality, particularly among those with recurrent infarction. The age of the patient and the duration of symptoms before admission did not appear to be important.

The results in initial episodes are similar to those recorded by Master *et al.*[4] in 1939 and by Jacobs[5] in 1951. These authors reported mortality rates of 23% and 19% respectively. Honey and Truelove[3] reviewed a large series of cases of myocardial infarction treated between 1943 and 1956 and found that the mortality had remained fairly constant during this period. Comparison of the results of different series of cases is difficult because of differences in case selection as well as possible regional variation in the incidence and severity of the disease. Nevertheless, the results now presented show how little improvement there has been during the last 20 years. As this series is small and there were no controls, no attempt has been made to evaluate the use of anticoagulant drugs.

Pulmonary emboli were recognized in 9 patients (12%) but appeared to contribute to only 1 death. Small emboli were probably missed in the absence of gross signs, but there was no evidence at necropsy that this had occurred frequently. The relative infrequency of pulmonary emboli as a cause of death in myocardial infarction has recently been commented on by Hilden *et al.*[6]

It is concluded that in Durban the mortality from this disease is similar to that reported overseas and remains considerable, particularly in recurrent episodes.

Summary

An unselected series of cases of myocardial infarction treated in a general hospital is reviewed. A history of previous infarction is the most important prognostic factor. The mortality remains similar to that reported 20 years ago.

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