# A PROFILE OF ACUTE MYOCARDIAL INFARCTION IN URBAN MALAYS

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## SUMMARY

*This is a retrospective study of epidemiological and risk factors of ischaemic heart disease in Malay patients admitted into the Coronary Care Unit, General Hospital, Kuala Lumpur between October 1977 and December 1979 with proven myocardial infarction. Of the 116 patients (M/F sex ratio 9.5 : 1), the incidence of various risk factors were smoking 82 percent, hypertension 42 percent, hypercholesterolemia 23 percent, diabetes mellitus 20 percent and family history 9 percent. Anterior infarctions were more common than inferior. Hyperuricemia was detected in 19 percent and 96 percent had at least one major risk factor. In terms of occupation, a major proportion of those afflicted were pensioners, security personnel and businessmen.*

## INTRODUCTION

The epidemiological and risk factors of ischaemic heart disease are well-documented in several established studies, the most notable of which is the Framingham study. [1,2]

While some risk factors are not established firmly, the 'big three' predictors of coronary events, viz. serum cholesterol level, blood pressure level and cigarette consumption, are widely recognised. [1,2,3,4,5,6,7,8,9]

The aim of this paper is to record the incidences of these risk factors in a population of urban Malays with proven myocardial infarction and also to document some of the more important epidemiological characteristics within this group.

## MATERIALS AND METHODS

This is a retrospective study of selected epidemiological and risk factors in a population of Malay patients normally resident in Kuala Lumpur. Malay patients admitted into the Coronary Care Unit, General Hospital, Kuala Lumpur under Medical Units 3 and 4 between the periods of October 1977 and December 1979 and proven to have acute myocardial infarction (based on the WHO criteria) form the population under study. Readmissions of the same patients and the final outcome of the event, e.g. death were disregarded in this study.

Data was compiled from existing case records. Cigarette consumption was based on history and categorised into non-smokers, smokers of 1 - 10 per day and smokers of more than 10 per day.

Hypertension was said to be present either in

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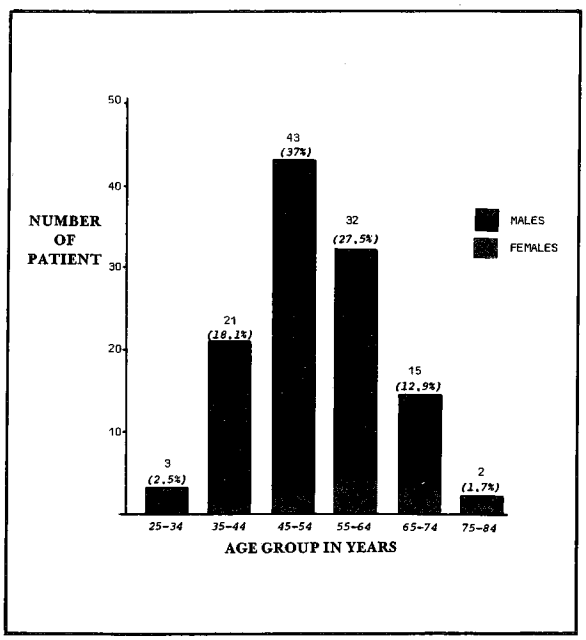


Fig. 1 Distribution of patients by age and sex.

those with a resting blood pressure exceeding 160/90 and/or in those with a past history of hypertension treated or otherwise.

The criteria for diabetes mellitus was taken as a fasting blood glucose exceeding 120 mg%, a diabetogenic glucose tolerance curve or a past history of diabetes mellitus treated or otherwise.

Serum cholesterol and serum uric acid was obtained as part of the routine hematological work-up subsequent to the acute coronary event.

## RESULTS

The population under study comprised 116 patients (105 males and 11 females). The male/female sex ratio was 9.5 : 1.

### Age

The age distribution is as seen in Fig. 1. The peak incidence for males is in the 45 - 54 year age-group while that of females occurred later, in the 55 - 64 year age-group. The mean age of all the patients was 53.0 years with an age range of 28 - 82 years.

### Occupation

Table I illustrates the occupations of the patients.

TABLE I
OCCUPATIONS OF 116 PATIENTS ADMITTED INTO THE CORONARY CARE UNIT, GENERAL HOSPITAL KUALA LUMPUR

| Occupation | No. of Patients | Percentage |
|---|---|---|
| University Graduates | 8 | 6.9 |
| College-Trained | 6 | 5.2 |
| Businessmen | 17 | 14.6 |
| Clerical workers | 9 | 7.7 |
| Security personnel | 21 | 18.1 |
| Drivers | 9 | 7.8 |
| Manual workers | 6 | 5.1 |
| Pensioners | 29 | 25.0 |
| Housewives/Others Unemployed | 11 | 9.6 |
| | 116 | 100.0 |

TABLE II
SITE OF INFARCTION SEEN IN 116 PATIENTS ADMITTED INTO THE CORONARY CARE UNIT, GENERAL HOSPITAL, KUALA LUMPUR

| | Male | Female | Total |
|---|---|---|---|
| Anteroseptal | 43 | 6 | 49 (42.2%) |
| Inferior | 36 | 3 | 39 (33.6%) |
| Extensive Anterior | 20 | 1 | 21 (18.1%) |
| Mixed | 6 | 1 | 7 ( 6.0%) |
| | 105 | 11 | 116 |

The main occupations involved were pensioners 29 (25 percent), security personnel 21 (18 percent) and businessmen 17 (15 percent). Together, they constituted over half (58 percent) of the patients afflicted.

### Site of Infarction

Table II illustrates that the commonest site of infarction was anteroseptal 49 (42 percent). Anterior infarctions (70 patients) were about twice as common as inferior (39 patients).

### Uric Acid Pattern

Fig. 2 shows the distribution of plasma uric acid levels in the patients. Based on an upper normal limit of 420 umol/l (7.0 mg/100 ml), hyperuricemia was present in 18 (18.5 percent) of the patients.

### Smoking

Eighty-one out of 99 patients were smokers (82

TABLE III
SMOKING HABITS OF 116 PATIENTS ADMITTED TO THE CORONARY CARE UNIT, GENERAL HOSPITAL, KUALA LUMPUR.

| Smoking Habits | Males | Females | Total |
|---|---|---|---|
| More Than 10/day | 74 | 0 | 74 |
| 1 - 10/day | 6 | 1 | 7 |
| Non-smokers | 10 | 8 | 18 |
| Data unavailable | 15 | 2 | 17 |
| Total | 105 | 11 | 116 |

percent), as shown in Table III. Eighty out of 90 (88 percent) male patients were smokers while 1 out of 8 (12.5 percent) female patients smoked.

### Hypertension

Based on the set criteria, 50 of 113 patients were hypertensive (44.2 percent).

### Raised serum cholesterol

The distribution of serum cholesterol levels, as illustrated in Fig. 3, shows a peak incidence in the 200 - 249 range.

Based on a normal upper limit of 6.4 mmol/l (250 mg/100 ml), hypercholesterolemia was detected in 16 (22.8 percent) patients. The mean serum cholesterol was 5.7 mmol/l (218 mg/100 ml).

### Diabetes Mellitus

Based on the set criteria, 23 patients were diabetic (20.3 percent)

### Positive Family History

Ten patients (8.6 percent) admitted to a positive history of Ishaemic Heart Disease in the immediate family members.

### Incidence of Major Risk Factors

The presence of any one of the major risk factors, i.e smoking, hypertension and hypercholesterolemia was computed from the data available (Fig. 4). This illustrates that over half of the patients (54.4 percent) had a single risk factor while 4.0 percent had none of the major risk factors. 112 (96.0 percent) patients had at least one major risk factor.

## DISCUSSION

We were handicapped in this study by a few

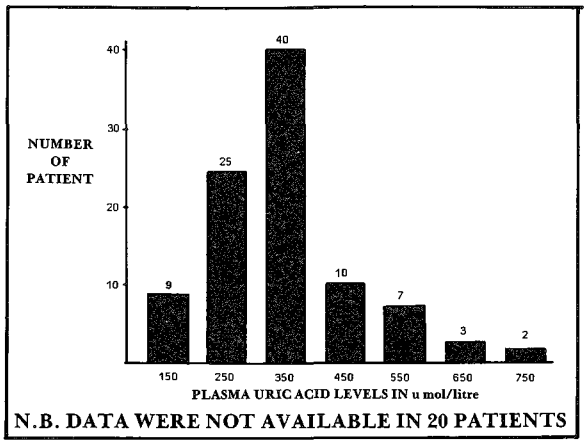


**Fig. 2 Distribution of plasma uric acid levels in patients under study.**

instances of incomplete data. This is not unexpected in a retrospective study. Furthermore, some of the critically-ill patients expired within a few hours of admission before an adequate history and blood for investigations could be taken.

Nevertheless, some useful data emerge. The peak incidence by age was seen in the 45 - 54 year age-group but it is interesting to note that 24 (20.6 percent) patients were below 45 years old - indeed the youngest patient was 28 years old. In women, as expected, the higher incidences were in the postmenopausal ages. Myocardial infarcts were also ten times commoner in males than females. The main occupations of the patients were pensioners, security personnel and businessmen. It needs to be pointed out that this may be a reflection of the geographical position and governmental status of the General Hospital, rather than actual representation of the main occupation of the population at risk.

A sizeable proportion of the patients had a major-risk factor — smoking (82 percent), hypertension (44 percent) and hypercholesterolemia (23 percent). In fact, 96 percent of the patients had at least any one of these major risk factors. The presence of other risk factors examined included diabetes mellitus (20 percent) and a family history (90 percent). The controversial position of plasma uric acid as a risk factor [5,8,10] is reflected in the results obtained here — only 19 percent of the patients were hyperuricemic. In this context, it would be ideal if the incidences of the various risk factors could be compared with similar indices in a normal population; but the absence of suitable

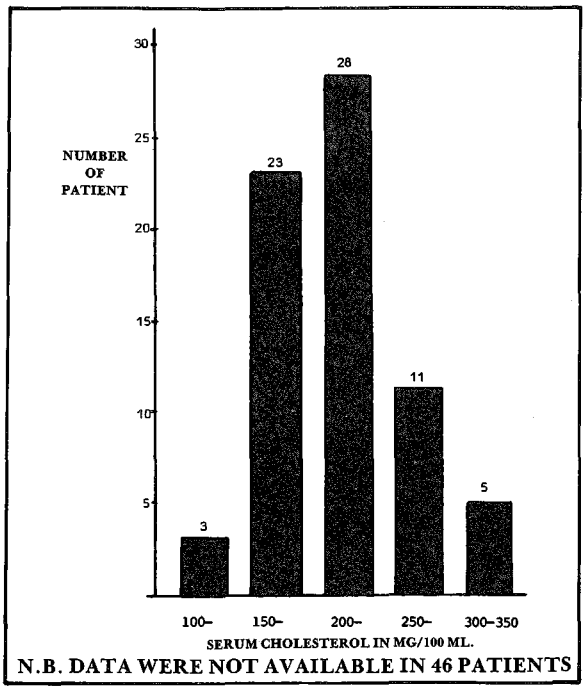


**Fig. 3 Distribution of serum cholesterol levels in patients under study**

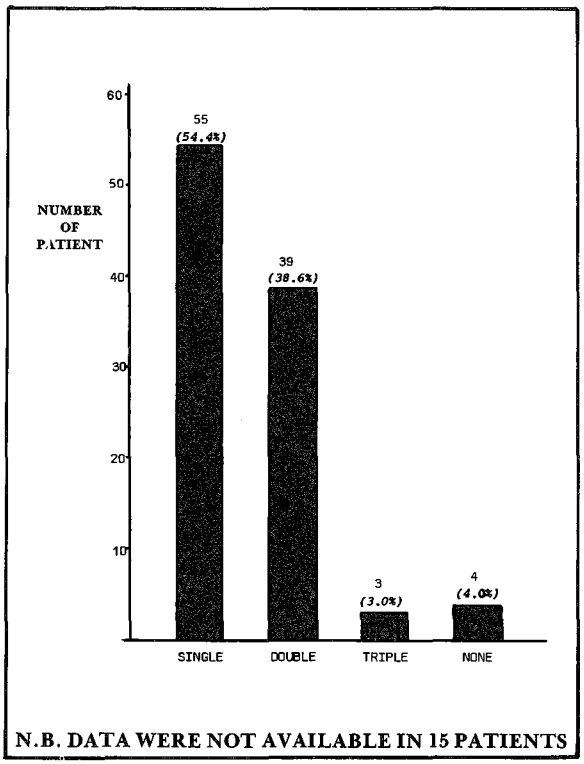


**Fig. 4 Major risk factors in patients under study.**

data locally makes this impossible.

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