Anterior and inferior myocardial infarction

Comparison with regard to some diseases and background factors

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A pilot study has shown a significant positive correlation between anterior myocardial infarction and arterial hypertension, serum cholesterol values above 300 mg/100 ml, chronic lung diseases, diabetes mellitus, and the number of sibs who had suffered from myocardial infarction. The tendency for infarction to recur in the same site was significant at a 5 per cent level.

This work has its origin in the idea that patients suffering from anterior and inferior myocardial infarction may differ in certain respects. In arterial hypertension greater demands are made upon the left ventricle: patients with anterior infarction may, therefore, as a group have more hypertension than patients with inferior infarction. Differences between the two types of infarction patients may be detectable in family history as well as in associated diseases and in previous environmental exposures. A similar comparison has not been found in the available literature.

Subjects

The subjects were the survivors of a consecutive group of admissions to the hospital during the last months of 1971. The diagnoses were made in accordance with the Minnesota code. There were 101 patients (69 men and 32 women) suffering from anterior infarction and 74 patients (56 men and 18 women) suffering from inferior infarction. The two groups were comparable with regard to age and sex (Table 1).

Of the total of 175 patients, 53 had suffered one or more earlier attacks of myocardial infarction. These 53 people had suffered 66 episodes of myocardial infarction. The tendency of infarction to recur in the same site was found to be significant at a 5 per cent level (Table 2).

Since a personal interview conducted by the author was the initial source of information, only patients who had survived the acute stage of the disease could be included. Four people had to be excluded from the study because of their poor mental and physical condition. The interviews were carried out during the six months after admission to the hospital.

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Method

Records of previous diseases were initially compiled from information supplied by the patients during the course of the interviews. Only information confirmed by the

TABLE 1 Population according to age and sex, and to anterior and inferior myocardial infarction

Year of birth	Anterior infarction		Inferior infarction	
	Men	Women	Men	Women
1929 and later	—	—	—	1
1928-1924	2	—	1	—
1923-1919	6	—	8	—
1918-1914	6	2	9	2
1913-1909	17	8	12	6
1908-1904	21	11	15	3
1903-1899	9	6	6	3
1898-1894	5	1	4	1
1893-1889	2	4	1	2
1888 and earlier	1	—	—	—
Total	69	32	56	18

TABLE 2 Tendency of myocardial infarction to recur in same site

Site of first attack of myocardial infarction	Recurrences	
	Anterior	Inferior
Anterior	26	11
Inferior	12	17
	38	28
		66

Using Yates's correction, $\chi^2 = 3.9$, $P = 0.049$.

study of hospital records, the files of private and company doctors, or death certificates was used. This was also so for the recording of myocardial infarction, arterial hypertension, or diabetes mellitus in sibs and parents. The cholesterol estimations were those values obtained during the stay in hospital. Other sources of information were the census rolls and the local health insurance offices.

More than 500 different background factors were recorded. The majority of variables which revealed no significant differences were excluded from the study, but the remaining levels of significance were unlikely to be accidental, or to be due to bias produced by the interviewer.

Results

a) Family history

In the group suffering from anterior myocardial infarction there was a disproportionate number of people whose mothers had died suddenly. There was, however, no significant difference between the two groups so far as myocardial infarction in fathers and mothers was concerned.

There was a highly significant positive correlation between anterior myocardial infarction and the number of sibs who had suffered from myocardial

infarction, and more of the people in the anterior group had sibs who had suffered from myocardial infarction (Table 3). The same was true for cerebrovascular insults, but there was no significant difference between the two groups so far as the occurrence of arterial hypertension in sibs was concerned.

b) Social background factors

There were no significant differences between the two groups so far as social adjustment, premorbid personality, and precipitating factors were concerned. Detrimental changes in circumstances during the 12 months before the onset of disease such as death of wife or husband, redundancy, etc. were recorded as precipitating factors. There was no significant difference in the image which the members of the two groups had of themselves. Neither group contained a significantly greater number of people who had been led to believe since infancy that they were abnormally physically or mentally weak. There was a highly significant positive correlation between inferior infarction and the number of justified spells of incapacity for work during the 10 years preceding the onset of the disease (Table 4).

TABLE 3 *Comparison between patients suffering from anterior and inferior myocardial infarction with regard to some circulatory diseases in sibs*

	<i>Anterior infarction (101 people)</i>	<i>Inferior infarction (74 people)</i>	
Total no. of sibs			
Observed number	656	439	$\chi^2 = 2.15$
Expected number	632.0	463.0	
Myocardial infarction or sudden death in sibs			
Observed number	87	29	$\chi^2 = 10.91$
Expected number	69.5	46.5	$P = 0.001$
Patients with sibs with myocardial infarction			
Observed number	53	19	$\chi^2 = 7.40$
Expected number	41.6	30.4	$P = 0.007$
Arterial hypertension			
No. of sibs			
Observed number	37	19	$\chi^2 = 0.91$
Expected number	33.5	22.5	
Stroke			
No. of sibs			
Observed number	28	7	$\chi^2 = 5.83$
Expected number	21.0	14.0	$P = 0.016$
Patients with stroke among sibs			
Observed number	22	7	$\chi^2 = 3.97$
Expected number	16.7	12.3	$P = 0.05$

TABLE 4 *Comparison between patients suffering from anterior and inferior myocardial infarction with regard to number of justified spells of incapacity for work*

	<i>Anterior infarction (101 people)</i>	<i>Inferior infarction (74 people)</i>	
Total no. of spells of incapacity for work in previous 10 years			
Observed number	745	647	$\chi^2 = 10.04$
Expected number	803.4	588.6	$P = 0.0016$
Patients with no spell of incapacity for work in previous 10 years			
Observed number	22	6	$\chi^2 = 4.93$
Expected number	16.2	11.8	$P = 0.026$

c) **History of risk factors**

There was a highly significant positive correlation between anterior infarction and arterial hypertension, serum cholesterol values above 300 mg/100 ml, and chronic lung diseases (Table 5). There was also a significant positive correlation between anterior infarction and diabetes mellitus dependent upon drug treatment.

There was no significant difference between the two groups with regard to smoking habits or a history of angina pectoris for more than one year before the first attack of myocardial infarction.

When we consider those patients with anterior

or inferior infarction only, there are 91 (63 men and 28 women) in the anterior group and 65 (50 men and 15 women) in the inferior group. When the above variables were related to these two smaller groups, the correlations were the same as in the whole series.

Comments

The discovery of a disproportionate number of patients in the anterior infarction group with arterial hypertension supports the working hypothesis. There was, however, a positive correlation between anterior infarction and cholesterol values above

TABLE 5 *Comparison between patients suffering from anterior and inferior myocardial infarction with regard to some earlier diseases and smoking habits*

	<i>Anterior infarction (101 people)</i>	<i>Inferior infarction (74 people)</i>	
Arterial hypertension			
Observed number	39	10	$\chi^2 = 9.58$
Expected number	28.3	20.7	$P = 0.002$
Serum cholesterol > 300 mg%			
Observed number	36	10	$\chi^2 = 8.03$
Expected number	26.5	19.5	$P = 0.0046$
Chronic lung diseases			
Observed number	25	4	$\chi^2 = 9.73$
Expected number	16.7	12.3	$P = 0.0018$
Diabetes mellitus			
Observed number	9	1	$\chi^2 = 4.21$
Expected number	5.8	4.2	$P = 0.05$
Current cigarette smokers			
Observed number	45	46	$\chi^2 = 2.53$
Expected number	52.5	38.5	
Angina pectoris > 1 year			
Observed number	33	17	$\chi^2 = 1.38$
Expected number	28.9	21.1	

300 mg/100 ml, diabetes mellitus, chronic lung diseases, and the number of sibs who had suffered from myocardial infarction or cerebrovascular insults.

Theoretically it is possible that those who died are different from those who survived the attack of myocardial infarction as regards the site of the disease, social background, and exposure to risk factors. This is, however, a general problem for all retrospective studies. So far there is no evidence that such selective factors have seriously biased

retrospective studies. In this area about 40 per cent of patients die in the first attack of myocardial infarction.

The findings in this study are not easily explained. They do not justify the drawing of any conclusions, but do establish the need for further research.

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