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MYOCARDIAL INFARCTION

ITS RACIAL INCIDENCE IN CAPE TOWN DURING 1956

V. SCHRIRE, M.B., PH.D., M.Sc. (CAPE TOWN), M.R.C.P. (LOND.), M.R.C.P. (EDIN.)

From the Cardiac Clinic, Grootte Schuur Hospital and the University of Cape Town

In a previous communication¹ the racial incidence of cardiac infarction in Cape Town was reported during the years 1953 and 1954. The validity of the impression that coronary heart disease was very uncommon in the Bantu and commoner in the Europeans than the Cape Coloured population was proven by an analysis of the electrocardiograms of adult in-patients and out-patients attending Grootte Schuur Hospital. To confirm this an analysis of the incidence of the disease during 1956 was made.

Grootte Schuur Hospital, during 1956, was the main hospital serving the population of Cape Town and the surrounding districts. It is an 854-bed hospital with slightly more European beds than non-European. The New Somerset Hospital, on the other hand, is a smaller hospital serving the non-European population only. The 44 teaching beds of the New Somerset Hospital were included in the electrocardiographic service, so that the bed strength of European and non-European patients was approximately equal.

Figures compiled by the Bureau of Census and Statistics for March 1957 reveal that the population of Cape Town and its suburbs consisted of 280,800 Europeans, 351,100 Cape Coloured and 67,800 Bantu, giving a proportion of 4 : 5 : 1 respectively. Even taking the question of age into consideration, there are more non-Europeans at risk than European.

Furthermore, the population attending the hospital is selected, because a means test prevents the attendance of all but the poorest section of the community. Almost all the non-Europeans are eligible, and this certainly applies to the Bantu, but only the poorer Europeans. This means that, if anything, the incidence of coronary disease in the Europeans at large is underestimated by the figures obtained at our hospital. An attempt was made to obtain an approximate estimate of the incidence of coronary artery disease amongst the wealthier European population, as encountered by physicians on the staff of Grootte Schuur Hospital who were also in private practice. Accurate figures were not available, but the general impression was that the incidence of coronary artery disease in the European population was greater outside than inside the hospital.

During 1956, attendances of patients of all ages at the general out-patient section totalled 305,083, of which 144,047 were Cape Coloured and 25,147 Bantu, the remainder, 135,889, being European. Of the 23,183 adults admitted to the wards of Grootte Schuur Hospital 10,140 were Coloured, 2,067 Bantu, and the remainder, 10,976 European.

Thus it is fair to conclude that if the incidence of coronary-artery disease was the same in all races, the number of non-Europeans found to have coronary vascular disease during 1956 should at any event equal that found in the European. Although the Bantu population at risk is only a quarter of the European, a significant number of Bantu patients with coronary disease should be recorded.

FINDINGS

During 1956, the number of electrocardiograms requested for individual adults (over the age of 19) was 4,147. Slightly more were requested for Europeans than for non-Europeans (Table I), although more of the latter attended the hospital. This again suggests that attention is more often directed to the heart in the European than in the non-European. Of the 4,147 electrocardiograms, 400 showed the classical

TABLE I. RACIAL INCIDENCE OF MYOCARDIAL INFARCTION DETERMINED ELECTROCARDIOGRAPHICALLY (RIGID CRITERIA) IN ADULTS OVER THE AGE OF 19

Race	Racial distribution of electrocardiograms		Racial distribution of infarct patterns		Percentage of races in 336 infarcts	Percentage of electrocardiograms showing infarcts
	No.	Ratio	No.	Ratio		
European	2,394	1.2	250	3	74.4	10.9
Coloured	1,539	1	85	1	25.3	5.5
Bantu	314		1		0.3	0.3
Total	4,147		336			

pattern of myocardial infarction. Only 336 of these, however, can be accepted for this study, because the remaining 64 were seen in response to a specific request by the Clinic and did not therefore attend hospital of their own accord. Of the 336 (Table I), 250 (74.4%) were in European and 85 (25.3%) in Cape Coloured; there was 1 Bantu case (0.3%).

Rigid criteria were used in the diagnosis of myocardial infarction. Abnormal T-wave and ST-segment changes alone were not accepted. As previously described,¹ in anterior infarction wide or deep Q waves in the praecordial leads (V1-V7) or diminution in the R waves across the praecordium with T-wave inversion or ST-segment change were required. In posterior infarction, a Q-wave of at least 0.04 seconds in width or deeper than 30% of the R-wave in AVF was accepted. In the presence of right bundle-branch block, a Q-wave of 0.04 second in AVF or abnormally wide Q-waves in the praecordial leads indicated infarction. Infarction was very seldom diagnosed in the presence of left bundle-branch block. The presence of Q waves or definite ST-segment depression over the left ventricle were then demanded.

If, however, less rigid criteria were used a further 350 cases could be accepted for analysis. In these there was a history strongly suggestive of coronary disease (angina pectoris or cardiac infarction), confirmed by an electrocardiogram, showing T-wave inversion without Q waves over the antero-lateral or posterior aspects of the left ventricle, or bundle-branch block without significant Q waves. 41 cases were excluded for the same reason as previously outlined, namely, they were specially asked to attend for re-examination and had not come to hospital of their own volition.

Of the remaining 309 additional cases 221 were Europeans and 88 Cape Coloured. The total number of electrocardiograms showing evidence of coronary vascular disease during 1956 was therefore 471 European, 173 Cape Coloured and

TABLE II. RACIAL INCIDENCE OF CORONARY VASCULAR DISEASE DETERMINED ELECTROCARDIOGRAPHICALLY IN ADULTS OVER THE AGE OF 19

Race	Racial distribution of electrocardiograms		Racial distribution of infarct patterns		Percentage of races in 645 infarcts	Percentage of electrocardiograms showing infarcts
	No.	Ratio	No.	Ratio		
European	2,294	1.2	471	2.7	73.2	20.5
Coloured	1,539	1	173	1	26.75	11.2
Bantu	314		1		0.15	0.3
Total	4,147		645			

one solitary Bantu (Table II). Although more electrocardiograms were done on Europeans than non-Europeans, the ratio was only 1 to 1.2, and this cannot be the sole explanation of the striking difference found in the racial incidence of myocardial infarction. If we express the number of infarctions as a percentage of the total number of electrocardiograms taken in each racial group, as in the previous communication,¹ the actual difference is well shown. Thus 100 electrocardiograms in Europeans included 20.5 infarctions, 100

TABLE III. AGE DISTRIBUTION

Age (years)	Europeans		Non-Europeans	
	No.	Total E.C.G.'s	No.	Total E.C.G.'s
20-29	2 (0.4%)	115	4 (2.3%)	231
30-39	18 (3.8%)	206	11 (6.3%)	275
40-49	83 (17.6%)	437	50 (28.7%)	421
50-59	149 (31.6%)	595	61 (35%)	543
60+	219 (46.6%)	941	48 (27%)	383
Total	471 (100%)	2,294	174 (100%)	1,853

electrocardiograms in Cape Coloured included 11.2 infarctions, and 100 electrocardiograms of Bantus included 0.3 infarctions (Table II). Furthermore, it is unlikely that age alone accounts for this incidence (Table III).

If one considers patients attending Groote Schuur Hospital for whom an electrocardiograph is taken, X-square analysis shows a highly significant increase in the incidence of patterns suggesting coronary-artery disease in the European as compared with the non-European. This is true for the decades 30-39, 40-49, 50-59 and also for patients over the age of 60 years. In the absence, however, of detailed knowledge of the nature of the population attending the hospital, or of the relative age incidence in the two racial groups attending the hospital, this conclusion is not absolutely valid from the pure statistical point of view, though the inference is highly likely.

CONCLUSIONS

Electrocardiograms of 4,147 adults attending the Groote Schuur Hospital and the New Somerset Hospital, Cape Town, during 1956 were analysed to determine the racial incidence of myocardial infarction.

Electrocardiographic evidence of myocardial infarction was found in only one Bantu during 1956.

Electrocardiographic evidence of myocardial infarction and coronary vascular disease was found more commonly in the European than in the Cape Coloured.

The higher incidence of coronary heart disease in Europeans than in non-Europeans was confirmed and was probably not due to a significant difference in age distribution of the population studied.

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