EDITORIAL

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Coronary artery disease in Malaysia: A perspective

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Magnitude of the Problem

The epidemiology of coronary artery disease (CAD) in Malaysia, to a large extent, reflects the trend of the disease in most developing countries. In 1955, "Heart Diseases" was not even listed as one of the 10 principal causes of medically certified deaths but between 1955 and 1965, it rose to second position and since 1980, has become the leading cause of death in this country. While this increase may be partly contributed by the improved methods of diagnosis and reporting, there undoubtedly has been an actual increase in the occurrence of this disease due to the improved socio-economic status and the changing lifestyle of the population. A similar trend in cardiovascular deaths was noticed in Singapore, where "Heart Diseases" had risen from fifth position in 1948 to first place in 1979.[1]

"Heart Disease and Cardiovascular Disorders" accounted for 28.3% of 24,549 medically certified deaths in Peninsular Malaysian in 1987,[2] i.e. about 19 deaths a day. Of these, the proportion due to ischemic heart disease (IHD), cerebrovascular disease, hypertensive heart disease and rheumatic heart disease were 39%, 28.6%, 3.4% and 2% respectively of 6,954 deaths.[3] However, only 37.6% of all deaths for that year in Peninsular Malaysia were medically certified. IHD appears to be a major problem in all states in Peninsula Malaysia, cardiac deaths from this cause ranging from 8.2% (Pahang) to 13.8% (Penang) of all medically certified deaths in the state.[2] Analysis of mortality trends for East Malaysia were not possible because of under reporting.

The age distribution of deaths due to IHD in this country appears to be similar to that in Western societies, mortality increasing with age. There were, however, 3.2% of 2,713 deaths in patients below the age of 40 years.[2] The male: female sex ratio was 2.2:1 although this varied among the three ethnic groups; 2.5:1, 1.7:1 and 3.0:1 among Malays, Chinese and Indians respectively. The proportion of Malays, Chinese and Indians constituting the population of Peninsula Malaysia for the year 1987 was 57%, 32% and 10% respectively. The proportion of deaths due to IHD among the Malays, Chinese and Indians however, was 34%, 39% and 26%.[2] Despite the limitations of this data, it appears that the Indian male is particularly "at risk" for the disease. This ethnic preponderance was first noticed in Singapore where in an autopsy series, the prevalence of CAD was seven times higher in Indians than in Chinese. This has also been noted in other studies from Uganda, Trinidad, South Africa and UK.[4] Mean age at first infarction was also less in Asians (50.2 years) than in white patients (55.5 years)[5] and this has also been our local impression.

Mortality figures are not the best way of determining the epidemiology of a disease in a country, especially when it is based on only slightly more than one-third of all deaths and is heavily skewed towards the urban areas. There is a need for large community surveys to determine the prevalence of CAD and the major risk factors in this country. This was attempted by the Ministry of Health four years ago but the results have yet to be released.

Prevalence of Risk Factors

Smoking is well established as a major risk factor for CAD in Malaysia. Jeyamalar et al in their series of 40 patients with CAD below the age of 40 years, found smoking to be the predominant risk factor (66% of patients).[6] Similarly Quek et al reported that the overall heart attack rate for smokers was 41.7% versus 32.5% for non smokers in their study of patients admitted to the CCU, GHKL.[7] The prevalence of smoking is however not well documented although from available studies it is likely that about one-third of Malaysian males smoke.[8,9]

Studies on cholesterol levels in this country are lacking. In their young patients with CAD, Jeyamalar et al found only 12.5% to have cholesterol levels about 260 mg/100 ml.[6] Teo et al in their survey of asymptomatic male executives and professionals from two urban areas found 30.8% to have cholesterol values above 260 mg/100 ml. The mean cholesterol value for the group was 232.3 +/– 44.1 mg/100 ml and % HDL cholesterol 18.3 +/– 6.0%.[9] Saha in Singapore noted no significant difference in the levels of serum total, free and esterified cholesterol between the three major ethnic groups. Indians however had significantly lower levels of HDL cholesterol than the Chinese ($p < 0.005$). Apoprotein A-1 levels were higher in the Chinese than Indians (NS) and so were apolipoprotein A-11 values ($p < 0.001$).[10] This study however could not explain the differences in the CAD mortality between the Indians and Malays in Singapore (3.4 versus 1.3) based on their lipoprotein profile since these were similar in both groups.

Apoprotein A-1 is important as a factor in the metabolism of HDL cholesterol whereas apoprotein B is the principal protein of LDL cholesterol. Thus a low level of apoprotein A-1 and high levels of apoprotein B would favor atherosclerosis. There is a need to analyse the lipoprotein profile and apoprotein constitution of Malaysians. If our findings concur with that of Saha[10] further research has to be undertaken to determine if these could be explained by differences in cultural, behavioural, dietary and physical activity alone or, if genetic polymorphism in the gene loci coding for these apoproteins are responsible.

The prevalence of hypertension in Malaysia has varied between 14%[11] and 21.5%[12] based on community surveys in rural areas and 10.9% among urban male executives and professionals.[9] In the study by Arokiasamy and Gan in Kuala Langat, 21.5% of 1486 persons above the age of 12 years who were not known to be hypertensives were found to be have high blood pressures.[12] Hypertension is a "silent" disease and unless it is routinely looked for, many cases will not be detected. Diagnosis is often late and the problem is further compounded by the high default rate because of non compliance either due to drug side effects or to the popular misconception that absence of symptoms or satisfactory BP control is an indication to discontinue drug therapy.

Diabetes has been estimated to have a prevalence of 4% in Malaysia.[13] There seems to be an association between NIDDM and CAD which may be explained by a genetic predisposition to both or the presence of a third factor.[14] In a review of CAD among South Asians, McKeigue et al found that the excess susceptibility of Indian immigrants to CAD could not be explained by smoking, blood pressure or cholesterol levels. The group however did have low HDL cholesterol and high triglyceride levels and a high prevalence of NIDDM, reflecting a state of insulin resistance.[4] Whether this metabolic abnormality alone can explain the excess mortality among Indian immigrants awaits further research.

Prevention Programs

Considering the magnitude of the problem that exists in this country, prevention programs are

imperative. Controversy exists as to whether these should take the form of mass screening programs aimed at the entire population or be confined to "high risk" individuals only. Certain prevention programes like the anti-smoking campaign and hypertension control, may be implemented on a population basis effectively and cheaply. However, as far as cholesterol testing goes, both policy statements of the European Atherosclerosis Society Study Group[15] and the National Cholesterol Education Program Expert Panel on Detection, Evaluation and Treatment of high blood cholesterol in Adults[16] advocate universal cholesterol measurements in adults. The British however, recommended that this be confined to "high risk" individuals only.[17] This controversy is best settled for our country, by our own expert committee based on the prevalence of hypercholesterolemia and the cost effectiveness of such mass cholesterol testing. The committee should also determine our own cut off points, the frequency with which these measurements should be repeated and offer guidelines for treatment based on the dietary patterns and drug availability in this country.

It should be appreciated that mass screening programs are not feasible in Malaysia at the present time because of costs and the immediate burden it would place on the existing medical services. Selective screening of the "high risk" individual for diabetes and hypercholesterolemia would be more feasible and cost effective. Criteria of selection for screening should be clearly defined and made known to the public via the mass media. Yet another approach would be to incorporate compulsory blood pressure measurements, blood sugar and cholesterol testing in routine health assessments. First visits, executive health checks, insurance examinations and pre-employment health checks offer opportunities for active case finding of the "high risk" individual. Family practitioners, estate and factory doctors and outpatient and rural health clinics play a vital role in this "case finding" program. The government, on its part, should reduce taxation on syphygmomanometers, glucose strips and meters, cholesterol test kits and autoanalysers, making these freely available at all health centers. Stringent quality control on these test kits and educating health personnel on how to operate these properly are essential to reduce the incidence of erroneous readings. "High risk" individuals, thus identified, should undergo vigorous treatment and control of the predisposing factors preferably according to guidelines and patterns of referral set by our own team of experts. Constant reinforcement and reminders by the family doctor, mass media and self help groups on the importance of adhering to treatment is necessary. Low dose aspirin appears to reduce the incidence of acute myocardial infarctions in apparently healthy men and may be particularly beneficial in this subgroup.

Prevention of CAD should be a collective effort by the Health services, community, voluntary organisations, bodies such as the MMA, Malaysian College of General Practitioners and the National Heart Association and the mass media. Health education in the form of pamphlets, talks, forums, exhibitions and via the mass media should stress the evils of smoking, the dangers of obesity and the importance of regular physical exercise and a balanced low fat diet. Healthier ways of preparing common Malaysian food should be taught. Good habits should be cultivated early and ideally intervention in the form of health education should start in schools. Active community participation is vital for the success of these prevention programs. Health related activities should be made an important priority of all social organisations and clubs. It would be naive to assume that education alone can effect a change in lifestyle and eating habits. Strong government support for these programs is important. Increasing taxes on cigarettes, banning cigarette advertisements over the mass media and assisting tobacco growers to change to some other agricultural activity would all help the cause. There should also be provision of facilities for physical exercise in the form of jogging tracks, gymnasiums and health clubs run by the local district authorities and accessible to the public for a small token fee.

Early Detection and Treatment

From the Framingham study, sudden death is the first and only manifestation of CAD in about 18% of patients.[18] Based on current knowledge however, routine exercise testing in the screening for CAD in asymptomatic healthy individuals can not be advocated at present because of the low predictive value of an abnormal result in forecasting future coronary events in this group.[19] Confining the test to persons with coronary risk factors would increase its predictiveness. However, the Task Force on Assessment of Cardiovascular Procedures of the American College of Cardiology and American Heart Association called this a class II indication for exercise testing i.e. a condition in which it is frequently used but where there is a divergence of opinion about its value.[20] Clearly, it would be more beneficial and cost effective to educate the public on the early warning symptoms of an impending coronary event and advise them to seek immediate medical attention.

Treatment of CAD is fairly well established in this country. The modern day drug armamentarium available in the therapy of stable and unstable angina (aspirin, heparin, nitrates, b-blockers and calcium antagonists) are readily available in most hospitals in Malaysia. Thrombolytic therapy, when indicated in patients with acute myocardial infarction, should be administered early and more frequently. If the usual precautions are taken, side effects of this form of treatment are minimal when compared with the immense benefits gained from reduction in infarct size and decrease in mortality. This drug is now available in most General Hospitals and this should be further extended to District Hospitals as well. The patient with CAD should be risk stratified early in management. Clinical symptomatology, exercise testing, echocardiography, Holter monitoring and/or thallium scintigraphy can help identify the individual at high risk for further ischemic and arrhythmic events requiring early interventional therapy. Some of these facilities for the non invasive assessment and treatment of the cardiac patient are widely available in most large hospitals. Unfortunately, they are not being utilised optimally partly due to the lack of knowledge. Continuing medical education is a necessary prerequisite of being a good doctor and all medical officers and physicians should be given unrecorded leave, at least once a year, to attend conferences and seminars. Physicians should be sent on a rotational basis to a tertiary cardiac center to keep abreast of the latest concepts on management.

Interventional facilities are well developed in Malaysia albeit inadequate in number and distribution. Cardiac catheterisation laboratories and facilities and expertise for angioplasty and coronary artery bypass surgery, comparable to those in Singapore and even the West, are largely concentrated in the Klang valley. This situation is far from satisfactory, resulting in long waiting lists and frustrations to both patients and overworked staff. Ideally there should be catheterisation laboratories and surgical facilities subsidised partly or wholly by the Government, in the northern, southern and eastern parts of Peninsula Malaysia – in Johor Baru, Kuantan, Kota Baru and Penang. It may be argued that concentrating available resources in a single large centre of excellence may be superior to having a number of smaller less well developed centres. Besides the obvious advantage of optimising the quality of care available for cardiac patients throughout the country and circumventing the problem of transporting an unstable and ill patient, an additional benefit of having such facilities close to the home and family, would be to make the local population particularly from the rural areas, more receptive to the idea of interventional therapy, be it angioplasty or bypass surgery. The costs and personnel involved to achieve this objective are however, beyond the budget and manpower capabilities of the government at present although it is hoped that this will be achieved within the next decade. We have the local expertise to start training our own cardiologists and cardiac surgeons. The already existing training schemes for cardiac technicians and radiographers should be further expanded to meet manpower require-

ments. These training programs could be made a joint undertaking of the academic institutions and the Cardiac and Cardiothoracic Units, General Hospital, Kuala Lumpur. For all these to succeed however, the constant exodus of medical personnel to the private sector should be halted and the existing staff enticed to remain in Government service with attractive and competitive salaries and remuneration.

Health care is increasingly technical and expensive. The proposed prevention programs, the more liberal use of expensive but effective drugs like thrombolytics, and the establishing of more catheterisation laboratories and angioplasty and surgical facilities would necessitate a further drain on the health budget. One way of accommodating this would be to set up a health insurance scheme and privatise some aspects of health care as has been proposed by the Health Minister. In this way those who can afford it, can pay for their health care leaving the genuinely poor to enjoy welfare benefits.

Conclusion

There is strong evidence that prevention programs reduce CAD mortality and cause regression of atherosclerotic lesions. It is time that such comprehensive programs be given "high priority" in this country. This is not an easy task considering the eating habits, cultural practices and attitudes of Malaysians. Cigarette and certain food processing companies are important sources of government revenue further compounding the issue. We should start with health education and hopefully with increased public awareness, the government can be pressurised to introduce the necessary reforms and legislation. Professional bodies like the National Heart Association of Malaysia, MMA and the Malaysian Diabetes Association should be the main champions of this cause, propagating the idea of a "healthy lifestyle" in general. Family practitioners, schools and the mass media are the vital means of dispensing this knowledge and increasing public health consciousness. The battle will be long and uphill and the results neither immediate nor tangible but this may be the only hope for most Malaysians as we strive for Health Care For All By The Year 2000.

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