

DILEMMAS IN CORONARY ARTERY DISEASE

Coronary artery disease has emerged as one of the most important causes of death and disability in our community. No longer can this disease be considered the domain of the affluent or the old, for it unleashes its deadly tentacles at even the poor and the young. Today, the question in point frequently is not who has or who has not got coronary artery disease, but who has the most and who has the least.

The three major manifestations of coronary artery disease are sudden death, angina pectoris and acute myocardial infarction. A frequent presentation of coronary artery disease is sudden death, where the victim, who has hitherto been well, dies suddenly and unexpectedly of ventricular fibrillation. The suddenness of demise always creates an aura of amazement and confusion in the minds of lay people and doctors alike. For how can a person succumb to coronary disease so suddenly and unexpectedly when prior to his death he has been so well and has most likely even been given a "clean bill of health" by his family physician. Herein lies the first dilemma of coronary artery disease. Although overt manifestations such as angina pectoris and acute myocardial infarction occur most frequently in middle or old age, the roots of this disease have their origins many years earlier. Flow in the coronary artery is significantly compromised only when its lumen is narrowed by 75% or more. This degree of obstruction takes at least one to two decades to evolve. During this period of time, the victim is blissfully unaware of his illness as the atherosclerotic process continues on its relentless course. Even when the coronary arteries are severely stenosed, many victims are still free of symptoms, until they succumb to sudden death or develop angina pectoris or acute myocardial infarction.

The second dilemma in coronary artery disease is the diagnosis of this condition. Although acute myocardial infarction usually presents in the classical fashion which is easily recognised, it not infrequently reveals itself in more subtle ways which are often difficult to appreciate, particularly

during the early phase. Thus, acute myocardial infarction may come in the guise of "myalgias", cardiac arrhythmias, and even indigestion. To compound these difficulties, the electrocardiogram is usually either normal or shows only non-specific changes in this very early stage. And yet early diagnosis and admission into hospital are of vital importance. This is so because death is highest during the first few hours following infarction and is most frequently due to ventricular fibrillation which is potentially salvageable if the patient is in hospital.

Chronic coronary artery disease — either as angina pectoris or in the asymptomatic form — is also not always easy to detect. The resting electrocardiogram has a very low pick up rate and may be normal even in the face of severe coronary artery disease. The treadmill exercise stress test gives a much higher yield, and is recommended if the resting electrocardiogram is normal and if coronary artery disease is suspected. Nuclear cardiac imaging combined with stress testing is a highly sensitive and specific test, but is limited in its use because of its complexities and costs. The gold standard for the diagnosis of coronary artery disease is the coronary arteriogram. However, this is an invasive procedure which carries a small but definite mortality and morbidity, and is therefore not recommended routinely. It is usually done either as a prelude to coronary artery surgery or for the assessment of certain difficult cases or special situations.

The third and last dilemma concerns treatment in coronary artery disease. There is little doubt that the introduction of coronary care units have reduced the hospital mortality of acute myocardial infarction from about 30 to 15%, due largely to better management of cardiac arrhythmias. However, the vast majority of deaths occur during the first few hours following infarction, outside the hospital arena. In the words of McNeilly and Pemberton, infarction patients in hospitals "represent in fact survivors of a storm which has already taken its main toll".

Problems also exist in the treatment of chronic coronary artery disease. About 80% of patients with angina pectoris will obtain satisfactory relief with judicious use of beta blockers and nitrates. However, the two most important issues, namely prolongation of life and prevention of a future attack of myocardial infarction are much more difficult to achieve. Many forms of medical therapy have been advocated in the past to obtain both these goals, but none has stood the test of time, except perhaps stopping cigarette smoking and long term beta blocker therapy.

Saphenous vein bypass surgery was introduced about 11 years ago as a panacea for coronary artery disease. After more than a decade of application, it is apparent that this modality of treatment is far from an instant cure for coronary artery disease. Like beta blocker therapy, saphenous vein bypass surgery will provide symptomatic relief in about 80% of angina cases and therefore can be strongly recommended for patients suffering from intractable angina which has proved unresponsive to medical therapy. However, whether it will prevent a future attack of myocardial infarction, sudden death or prolong life is at present uncertain, except for the small segment of coronary

patients who have left main coronary artery disease.

It is clear therefore that coronary artery disease, once established and particularly if severe, poses many challenges in management, to which answers are frequently not forthcoming at present. Therefore, primary prevention of coronary artery disease must assume paramount importance. The presently known risk factors for coronary artery disease are: growing old, belonging to the male sex, belonging to the Indian ethnic group, hypertension, hypercholesterolaemia, cigarette smoking, diabetes mellitus, physical inactivity, obesity and mental stress. The first three risk factors are legacies which we inherit and which we can do nothing about. The others however are a direct result of our life style and are therefore highly amenable to correction. If Singaporeans were to eat a little less and a little more prudently, stop smoking, exercise regularly and have their blood pressures checked periodically, there is every hope that the incidence of coronary artery disease will decrease in the years to come.

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