SPECIAL ARTICLE

PREMATURE MYOCARDIAL INFARCTION IN SINGAPORE

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The article by the NUH workers on Premature Myocardial Infarction in Singapore is interesting, and useful from the preventive aspect[1]. Coronary Heart Disease is one of the leading causes of death in Singapore. In 1989, 3% of the patients with acute myocardial infarction were less than 40 years old. In absolute terms there were a total of 254 patients aged below 40 years who had acute myocardial infarction in Singapore from the years 1988 to 1990, as documented by the Singapore Myocardial Infarction Registry[2].

Risk factors in young Singaporean patients with acute myocardial infarction described by Toh et al were cited by Dolder et al in their nine-country study of myocardial infarction in young men[3]. Cigarette smoking stood out as the commonest risk factor (86%) in the young Singaporean survivors following an infarct. This is confirmed by the observation of 84% smokers in this present study. In the study of 304 patients with acute myocardial infarction, 55% of the total number of patients of all age groups were smokers[4]. Smoking is thus the single most important risk factor not only in the young but also in the whole cohort of patients with acute myocardial infarction.

Smoking is a preventable risk factor. The harmful effects of cigarette smoke, both in smokers and passive smokers (ETS or Environmental Tobacco Smoke or second-hand smoke) have been well documented[5]. The announcement of a smoking ban for Singaporeans below the age of 18 years is an important piece of bold and preventive legislation in Singapore. Perhaps Singapore could lead the world by more aggressive measures, the eventual total ban on the sales of cigarettes to be targetted at some future date in Singapore. The article entitled "America's New Merchants of Death" in the April 1993 edition of the Reader's Digest, albeit a nonmedical publication, provides a lot of food for thought.

Hyperlipidaemia, as defined as levels above 6.2 mmol per litre in the NUH study was present in over half of the patients. About one-fifth of the Singaporeans studied had levels above 240mg/dl[6]. Hyperlipidaemia was apparently not a major factor in the study of Dolder in 1975. However the authors defined hyperlipidaemia as serum cholesterol of 7.25 mmol/l and more. Hyperlipidaemia is an important risk factor in this young group of patients who had acute myocardial infarction. Family history was present in 20% of patients in this study. Diabetes mellitus was present in 16%, and hypertension was present in 19% of patients.

The presence of significant number of coronary risk factors in the majority of the patients, the presence of 1.5 risk factors (range 2-5) per patient may have important preventive implications. The role of preventive measures in the early detection and reduction of these risk factors in this group of Singaporeans at the prime of their careers may well save youthful lives and save the country millions of health care dollars in trying to treat the aftermath following an acute myocardial infarction. High technology cardiovascular treatment is highly expensive and very often offers only temporary relief, and not permanent cure. One example is the technique of PTCA (Percutaneous Transluminal Coronary Angioplasty). Well-designed and objectively-assessed studies have documented restenosis rate of over 50% at 6 months[8].

Singapore has a unique system of a "captured" young male population from age 18 to 45 years under the National Service and Reservist programme. With a decreasing birthrate, it is important that Singapore keeps this crucial portion of the population healthy by risk factor education throughout the whole of the national service and reservist period.

The NUH study has not made comparison of clinical variables with the older cohort of patients with acute myocardial infarction. The early in-hospital mortality was low, as would be expected. The mortality following an infarction however, increases with age. The absence of females in this small group of patients confirms the lower risk in the young females. The observed higher than expected myocardial infarction in the Indians and the higher proportion of patients with single and minor coronary artery disease (19 out of 25 patients) is in keeping with previous studies[4,7].

The presence of minor disease in the infarct related artery following a myocardial infarction in some of the younger patients may indicate the presence of spasm or transient thrombosis as the underlying mechanism which leads eventually to the total occlusion of the vessel and culminates in a myocardial infarct. What are actually the trigger factors for plaque rupture, spasm and thrombosis? In view of the preponderance of smokers in this young cohort it would be important to study the actual role and contribution of smoking in this younger group of patients.

The NUH workers performed angiogram in all but one patient. Cardiologists generally are more aggressive in the recommendation of invasive studies and intervention in the younger cohort, of patients. The question of the need for routine coronary angiogram for all patients after myocardial infarction is debatable. Negus et al concluded that routine coronary angiography was not indicated in asymptomatic patients after infarction based on their study of postinfarction patients less than 40 years old[9].

Physicians should emphasise the importance and the need for postinfarction modification of coronary risk factors in this young cohort. The latest strategy of medical angioplasty with medical treatment and modification of risk factors is of crucial importance in these patients in the prevention of subsequent cardiac events.

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The recent publication of the 12-year follow-up study of the medically treated patients in the CASS study should be encouraging data for the patients with coronary artery disease. Survival of 74% over a 12-year period in medically treated patients with single vessel disease in the CASS study confirms the possibility of medical treatment achieving good long term prognosis. This is so in spite of the fact that the average age of entry was 52.8 years[10].

It would be useful for the workers to continue to follow-up these patients in the long term and document the subsequent clinical course. Secondary preventive measures are important in this young group of patients to prevent future cardiac events, ie by stopping progression and hopefully increasing the chances of regression of existing coronary atherosclerosis.

References

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