Cardiovascular disease is no longer the leading cause of mortality only in Europe and North America, but it is increasingly documented as a major contributor to morbidity and mortality in developing countries. In Asia, where there are developing as well as developed countries, and countries in ‘transition’ it is now recognized that cardiovascular disease is taking an increasingly heavy toll. This is linked to ‘westernization’ of lifestyles which includes substantial increases in dietary total and animal fats in different Asian populations. Overweight and obesity with their accompanying type 2 diabetes are also major contributors to an epidemic in increasing cardiovascular disease morbidity and mortality from which few countries are spared. Even in children, for example, a doubling of the prevalence of type 2 diabetes was documented in a Bangkok hospital over the period of a single year. Marked increases in cardiovascular risk contributors, including obesity and type 2 diabetes, are widely documented in such countries as Japan, Korea, and Thailand. It has been suggested that westernization of the diet may lead to more adverse changes in cardiovascular risk factors in Asian populations as compared to the Caucasian populations of Europe and the United States. These increases are not only associated with changing total fat intakes, but also a decrease in the long-chain polyunsaturated fatty acids omega-3 (n-3) intakes in these countries.

Many studies have now shown a correlation between higher dietary intakes of n-3 fatty acids and protection against cardiovascular disease, morbidity, and mortality. Two particular n-3 fatty acids, eicosapentaenoic (EPA) and docosahexaenoic (DHA), are increasingly recognized as important modulators of molecular pathways that are important in the progression of cardiovascular disease. The essential fatty acid precursor of EPA and DHA, α-linolenic acid, is generally less effective in protective mechanisms relating to cardiovascular disease. n-3 fatty acids decrease inflammatory pathways, cardiac excitability, platelet aggregation and clotting, and reduce blood triglyceride levels, blood pressure, and the stability of atheromatous plaques. In addition, EPA and DHA reduce vascular smooth muscle hypertrophy, reduce endothelial dysfunction, increase vascular activity, and decrease cholesterol accumulation in the arterial wall. These biological pathways potentially contribute to the beneficial effects of primary and secondary prevention of factors related to cardiovascular disease in trials where n-3 fatty acid intake have been augmented through diet or through supplements.

Still, in countries such as Korea and Japan where data is available, dietary n-3 PUFA intakes are considerably higher than that of many European and North American countries. In addition, while there have been striking increases in cardiovascular disease morbidity, and mortality in these same countries in Asia, prevalence rates are at this time lower than those of North America and Europe; still, in at least one Asian country, coronary vascular disease mortality in younger age people (ages 35 – 64 years) are up to 2-fold higher than age-matched populations in the United States. Thus, in Asian settings, cardiovascular disease is likely attacking people at younger ages compared to the United States and Europe – a situation possible in countries in transition between traditional vs. western lifestyle habits. Such a case can be occurring in Thailand.

Thus, the question arises – in countries where n-3 fatty acid intake is already high compared to Western Europe and North America, does it make sense to maintain, or even increase intakes of n-3 fatty acids? Additionally, should there be action to prevent decreasing n-3 fatty acids in Asia? Likely the answer is “yes” to both questions at least in terms of prevention of cardiac death in those who have already had a cardiac event. In the recently reported Japan EPA Lipid Intervention Study (JELIS) supplementation of EPA at a level of 1.8 g/day reduced the incidence of major cardiovascular events in Japanese patients with elevated blood cholesterol levels. This study is particularly noteworthy in that the Japanese population has baseline intakes of fish above the threshold for preventing cardiac death, but still, benefits from EPA supplementation were observed. Of interest, these improvements in decreasing coronary events appeared to be independent of changes in plasma lipid levels. The JELIS trial used only supplements of EPA – an open question is whether fish oils contained in dietary fish, or mixtures of EPA and DHA, would be equally effective. Optimal or best ratios of EPA and DHA are not yet determined, however, it has been recently suggested that a minimum intake of 250 mg of EPA plus DHA daily should be recommended for prevention of coronary heart disease, in both primary and secondary prevention settings.

Certainly, in areas of Asia where current n-3 fatty acids intakes are adequate, these levels should be maintained. A Japanese study showed that death rates from cerebrovascular disease, heart disease, hypertension, and cancer were significantly lower in people who ate fish daily compared to those who did so sometimes, rarely or never.
In conclusion, while it is very likely that westernization of lifestyle and dietary habits will progress in Asia, it is of particular importance to maintain or even increase intakes of n-3 fatty acids. In Asian populations where adequate intakes are current in the population, certain individuals may benefit from increased intake levels especially those deficient in n-3 fatty acids intake. At least from data from the JELIS study, it seems that supplemental n-3 fatty acids will be beneficial in Asians who have already had their first coronary event. Whether supplements of n-3 fatty acids in Asian populations with already high baseline intakes (> 250 mg EPA and DHA/day) will have beneficial effects in terms of primary prevention remains to be determined. With the current widespread dietary increases of total, and particularly saturated fats, the n-3 fatty acids, EPA and DHA, need to be considered as bioactive, preventive, and therapeutic adjuncts to ebb the tide of increasing cardiovascular disease in Asia.

REFERENCES


