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The Asia Pacific Clinical Nutrition Society Okinawan Recommendation on Nutrition and Cardiovascular Disease in the Asia Pacific Region

Mark L. Wahlqvist AO, MD, FRACP

Professor of Medicine and Director of the Asia Pacific Health & Nutrition Centre, Monash University, Melbourne, Australia.

The emergence of cardiovascular disease of the ischaemic type in the Asia Pacific region has been against a different food cultural background and greater rate of economic development than has occurred in Western countries. For these reasons, the assumptions about prevention and management transfer from West to East may not always be valid, and the opportunities for cardio-protection, located in the Asia-Pacific, lost to the rest of the world.

In November 2000, a working party was convened in Okinawa by the Asia Pacific Clinical Nutrition Society to address these issues. Okinawa was chosen because of its exceptionally favourable cardiovascular disease and longevity profile. The recommendations of this round-table were:

1. The prevention of macrovascular disease (MVD) in the Asia-Pacific region should be based on FBDDs (Food Based Dietary Guidelines), which take account of sustainability, culture, social settings and broad health needs.
2. Emphasise a varied, nutritious food intake as the foremost dietary guideline.
3. Greater efforts should be made to identify culturally relevant cardioprotective foods and beverages.
4. A lifelong approach to CVD prevention, from conception to old age, is required.
5. Attention should be given to the role of food, and quality of life, in ageing populations.
6. Encourage food intake decisions which are inclusive of physical fitness, mental health and social activity.
7. Develop advocacy for health food policy and programs in relation to CVD in the Asia-Pacific region through inter-sectoral partnerships and good governance.

References:
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Epidemiology of Cardiovascular Mortality and Risk Factors in the Asia Pacific Region

Geok Lin Khor PhD

Department of Nutrition & Health Sciences, Faculty of Medicine & Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Malaysia

Cardiovascular disease (CVD) embraces the conditions of the heart, hypertension and conditions of the cerebral, carotid and peripheral circulation. In terms of its effects on disability and mortality, CVD accounts for almost 10% of the global burden of disease. The two principal forms of CVD, coronary heart disease (CHD) and cerebrovascular disease (stroke) together account for two-thirds of the CVD burden. This article delineates the epidemiology of CHD and stroke mortality and their risk factors in the Asia Pacific region, with focus on East Asia, Southeast Asia, Australia, New Zealand and the Pacific islands.

As a proportion of total deaths from all causes, deaths due to CVD rank relatively higher in New Zealand, Australia, Singapore, urban China, Fiji and West Samoa (> 30%) than in Thailand, Philippines, Indonesia and rural China (< 20%), while others including Japan, Republic of Korea, Hong Kong and Malaysia lie in between (20-30%). In general, countries with higher CVD mortality percent also lead in CHD mortality rates (> 150 deaths per 100,000), as exemplified by Australia, New Zealand and Singapore. Countries in East Asia and Southeast Asia (except for Singapore) have lower CHD mortality rates (< 100 per 100,000). The lack of a complete registration and coverage of all deaths in several countries in the region might account for their low CVD mortality rates. As for stroke mortality rates, China and the Republic of Korea rank among the highest in the region for men and women (> 200 and > 150 deaths per 100,000 respectively), whilst Singapore, Taiwan, Japan, Australia and New Zealand have rates between 50-100 per 100,000 for both gender. Japan that once had the highest stroke mortality rate in the world has experienced substantial reduction in recent decades, declining from > 350 per 100,000 in men and > 200 per 100,000 in women in the 1970s. Declines in CVD mortality have been reported by Taiwan, Australia, New Zealand and Singapore. Nonetheless, there is an increasing trend for the prevalence of CVD in several countries that are undergoing the nutrition transition including Malaysia, Thailand, urban China and the Republic of Korea.

This article also highlights the growing problem of obesity and dyslipidemia among children in nutrition transition in the context of the hypothesis on the fetal origins of chronic disease and with implications on public efforts towards alleviating CVD risks.

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Nutrition and Cardiovascular Disease in the Asia Pacific Region: Obesity.

David Sullivan, and Ron Grunstein.
Depts of Clinical Biochemistry & Respiratory Medicine,
Royal Prince Alfred Hospital, Sydney, Australia.

Obesity contributes to the risk of cardiovascular disease courtesy of the link between central adiposity and the insulin resistance syndrome. There is also a close link between obesity and the risk of obstructive sleep apnoea (OSA). OSA is likely to contribute to cardiovascular disease, and some broader definitions of the insulin resistance syndrome even allow for the inclusion of OSA.

As with obesity itself, the prevalence of OSA varies considerably in the Asia Pacific region.

In Singapore, OSA was more prevalent in Malays than Chinese or Indians, despite similar BMI and neck circumference. OSA was independently associated with the prevalence of IHD. This seemed to confound the relationship between IHD and race, but another study showed that snoring was more prevalent in Indian Singaporeans and was associated with BMI and neck circumference. In New Zealand, 85% of Maoris and 94% of Pacific Islanders had OSA compared to 44% of Europeans. Multivariate analysis attributed this to association with waist circumference, BMI, age and neck circumferences, rather than race. The presentation will review the importance of OSA as a complication of obesity. It will also examine the variation in patterns and prevalence in the Asia Pacific region.
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Integrated prevention and control of Diabetes Mellitus in Malaysia

Osman Ali MD.
Department of Community Health, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.

Malaysia has developed a comprehensive national approach to NCD prevention and control since 1980s. The program includes development of national policies, implementing healthy lifestyles campaign that includes promoting healthy eating, formulating national nutrition policies, developing public education, nutrition information system; smoking control, NCD surveillance, NCDs screening program and creating national collaboration and networking to solve health problems. Some of the establish programs initiated by MOH are integrated NCDs health services at community level, healthy lifestyles campaign, healthy city projects and healthy settings, workers health, young doctor program, NCDs research and development etc.

The program have shown some impact to the trend of NCDs especially cardiovascular diseases. However, the trend of diabetes mellitus has been on the increasing trend. The implementation of integrated diabetes control program has been fully supported by top level policy makers including politician. The presence of visionary leaders, both in government and the Ministry of Health that support the vision 2020, vision of health and other developmental policies make the grow of public health system possible. In case of diabetes control programs, it was developed with the cooperation and support from all sectors including private enterprises. Community also has shown greater interest in health and get involved in all activities such as healthy life styles campaign, healthy city, young doctor program etc. By introducing the services at primary care levels, more people has opportunity to get themselves checked and get their health status determined. By this effort, individuals will be more responsible to their own self and they make own decision toward better quality of life. Health promotion has been conducted more regularly by MOH and NGO's. Mass media, talks and educational materials were main vehicles to deliver health messages to the public. Other strategy such as promoting the use of traditional herbs and practices that has been "traditionally" proven to promote wellness is also supported.

SY3-5

Public health nutrition strategies for the prevention of hypertension

Anthony Worsley BSc (Hons) PhD
School of Health Sciences, Deakin University, Burwood, Victoria, Australia

Hypertension is a highly prevalent risk factor for several disease outcomes in Asia-Pacific region. Its aetiology is multifaceted, including smoking, sedentariness, obesity and dietary imbalances, most notably excessive salt consumption. Other dietary antecedents will be described in this paper within the context of the Nutrition Transition.

The condition is most likely to be prevented via a combination of individual, community and governmental approaches applied at all stages of the life span. Examples of each strategy will be described.

More research is required into the dietary and lifestyle antecedents of hypertension as well as into the ways in which the condition may be prevented. In particular, monitoring and surveillance of hypertension and its antecedents of all sections the population is of primary importance for prevention.
Antioxidants and atherosclerosis

Kazuo Kondo MD

Institute of Environmental Science for Human Life, Ochanomizu University, Tokyo JAPAN

Risk factor, of current interest in the etiology of heart disease is the accumulation of oxidation products the body, and the role of antioxidants in minimizingoxidative damage. Since it is modified LDL and not LDL, that is atherogenic, interest is focused on antioxidants which inhibit LDL oxidation. There are many antioxidants in addition to vitamin E, vitamin C and carotenoids.

Recently we have addressed polyphenols as an important component among antioxidants. Tea, red wine, vegetables and so on are rich in polyphenols. Possibly, polyphenols in red wine inhibit LDL oxidation. Possibly, it is due to a diet enriched in polyphenols, including red color components such as anthocyanin. All of these substances may inhibit LDL oxidation.

Thus we examined the association between LDL oxidation and red wine in 10 male volunteers. They drank vodka for 14 days and then red wine for 14 days. All subjects received a standard diet. Oxidation of LDL was measured by the lag time method.

We observed a 10% longer lag time after consumption of red wine than before but no difference in lag time during consumption of vodka. This suggests that red wine intake rather than alcohol per se inhibits LDL oxidation and may reduce atherosclerosis.

Despite a high smoking rate, we still have a low incidence of coronary heart disease. The "Japanese paradox" referred to above may be influenced by other contributing factors. Perhaps other dietary components, including Japanese green tea, also rich in polyphenols, especially catechins, are involved. To test this hypothesis, 1 requested volunteers to consume green tea and 1 then measured the lag time before and after at 1,2,4 and 6 hours after consuming tea.

The LDL oxidation lag time was significantly prolonged at 1 and 2 hours after consuming green tea and serum polyphenols (epigallocatechin gallate and epicatechin gallate) levels also significantly increased during this time, suggesting that, catechins in green tea are absorbed in the intestine and enter the blood stream and inhibit LDL oxidation.

Only a few epidemiological studies exist that address these issues. One example, that of the Zutphen elderly study where flavonoid intake was more than 19 mg per day, it was found that coronary heart disease risk decreased by one-third compared to those with a lower flavonoid consumption. It is also known that differences in other nutrients such as black tea, onions and apples contributed to the outcome in this study.

Therapeutic Efficacy of Sliding-Scale based Cyclic Home Elemental Enteral Alimentation in Patients with Crohn's disease: Its Beneficial and Adverse Effects.

*Kei Matsueda M.D., Ph.D., °Tomofumi Amako, M.D.,
*Hajime Ariga, M.D., *Ryoosuke Shoda, M.D., Ph.D.
*Division of Gastroenterology, National Center of Neurology and Psychiatry, Koshigaya Hospital, Chiba, Japan **Division of Gastroenterology, International Medical Center of Japan, Tokyo, Japan

Drug treatment may not be sufficient enough to prevent flare-up of Crohn's disease (CD). We, therefore, developed a sliding-scale based home elemental enteral alimentation (S-S-B-HEEA) in order to prevent flare-up. The S-S-B-HEEA was also designed to prevent a development of essential fatty acid deficiency in patients with CD because elemental diet (ED) contains a minimal amount of fat. The long-term S-S-B-HEEA may also precipitate the deficiency of selenium (Se) because ED does not contain a sufficient amount of Se. So far, we have experienced 2 patients of possible Se-deficient cardiomyopathy with long-term S-S-B-HEEA. It is critical to detect the cardiomyopathy in the subclinical stage because it cannot be completely reversed when it becomes clinically full-blown. However, there are no practical methods to detect subclinical stage of Se-deficient cardiomyopathy at present.

AIM: Aims of this study were three folds: 1) to re-evaluate the therapeutic efficacy of S-S-B-HEEA in our patients, 2) to define whether or not the S-S-B-HEEA can prevent essential fatty acids deficiency, and 3) to establish the practical method to detect subclinical Se-deficient cardiomyopathy.

SUBJECTS & METHODS: 1. Cumulative remission and non-hospitalization rates were compared between S-S-B-HEEA treated CD patients (n=85) and drug-treated CD patients (n=15). 2. Fat composition of serum and red blood cell (RBC) membrane were measured in CD patients (n=18) who were on long-term S-S-B-HEEA (>1 year) and they were compared to that of control. 3. Eleven consecutive patients with CD on long-term S-S-B-HEEA (>1 year) were analyzed for plasma Se and their 12-lead ECGs were taken. Then, the correlation between the plasma Se concentration and the QTc interval of the ECGs were evaluated.

RESULTS: 1. Cumulative remission and non-hospitalization rates of S-S-B-HEEA treated group were significantly higher than those of drug-treated group (p<0.001). 2. Fat composition (18:2, 18:3, 20:3, 20:4) of serum and RBC membrane showed no significant difference between S-S-B-HEEA treated patients and control. 3. Nine out of 11 patients (81.8%) had low plasma Se concentrations (<100 µg/l= the lower limit of the reference value). Average plasma Se concentration was 48.8(±13.1) µg/l. Plasma Se concentration had an inverse correlation independently only with QTc interval among 3 parameters of ECG changes, patients' age and duration of S-S-B-HEEA (p<0.05).

CONCLUSIONS: The above results suggest that the therapeutic efficacy of S-S-B-HEEA was superior to that of drug treatment in CD. Moreover, it can prevent essential fatty acids deficiency in spite of the long-term use of ED. On the other hand, one may precipitate Se deficiency in patients with CD on long-term S-S-B-HEEA, and the prolongation of the QTc intervals in ECG is a feasible indicator to detect low plasma Se concentration possibly with early cardiac change.