Annals of African Medicine
Vol. 5, No. 2; 2006: 114 – 115

LETTER TO THE EDITOR

Secondary Prevention: Strategy for Reducing Cardiovascular Disease

Cardiovascular disease is the important single cause of non-communicable disease accounting in 2001 for 29% of all deaths and 10% of the global disease burden[1]. Coronary heart disease and cerebrovascular disease are the two main contributors to global cardiovascular morbidity and mortality[1]. Secondary prevention of cardiovascular disease is especially important because patients with cardiovascular disease are at greater risk of recurrent vascular disease and because there are several measures that can be taken to reduce the risk.

This study aims at providing information about the effectiveness of secondary preventive interventions in reducing the burden of cardiovascular disease. The interventions that appreciably reduce the high risks of recurrent cardiovascular disease include changes in lifestyle, pharmacological and surgical procedures. Furthermore, appropriate medication and changes in life style may also reduce the need for more costly and invasive forms of treatment (coronary revascularization) in the future.

Effective Secondary Preventive Measures

Modification of life style

There is evidence that changes in life styles- especially stopping cigarette smoking, dietary change and increasing physical activity levels- in patients with established coronary heart disease are likely to reduce risks both of current coronary heath disease and possible occurrence of other vascular events, particularly stroke. These changes may also have other beneficial effects, including reducing the risk of other non-communicable diseases and reducing the need for medication or medication dose required. Some of the life changes that are beneficial in preventing cardiovascular diseases include:

1. Dietary modification: There is considerable body of evidence regarding the nutritional background of atherosclerosis in general and Coronary heart disease in particular: the "diet- heart hypothesis". A casual relationship between total and low density lipoprotein (LDL) cholesterol and coronary heart disease risk has been supported both by observational evidence and by results of statin trials, both in primary and secondary coronary heart disease prevention.[2]
2. Non-use/stopping the use of tobacco products: Meta-analyses of observational cohort studies have shown substantial reductions in mortality associated with stopping cigarette smoking after myocardiac infarction by 46% (95% CI 38-54%).[3]
3. Physical activity and exercise/rehabilitation: Lack of physical activity is a strong independent risk factor for the development of coronary heart disease and which may cluster with other unhealthy behaviours, e.g. cigarette smoking.
4. Body weight reduction/management: Generally, weight loss is most effectively achieved by both reducing caloric intake and increasing physical activity levels. Body mass index (BMI) is related to risk of coronary heart disease incidence. The lowest levels of risk for coronary heart disease and other outcomes have been observed at BMI levels between 20-25kg/m^2, with higher levels observed among subjects who are overweight (BMI 25-29.9kg/m2) and particularly among those who are obese (BMI 30 kg/m^2 and above) .

Pharmacological interventions

In meta-analysis of randomized control trials involving approximately 70,000 patients with established occlusive vascular disease- previous myocardial infarction, stroke, transient ischaemic attack and peripheral vascular disease- daily use of low-dose aspirin (75-325mg/day) reduced the risk of recurrent vascular disease (MI, Stroke & Vascular death) by about one quarter for at least a month[4]. The greater benefits of anti-cholesterol have also been demonstrated in a secondary prevention trial in patients after coronary artery bypass graft surgery who derived a greater retardation in progression of arterial disease at target LDL levels of 1.6 to 2.2 mmol/l than were obtained at more conventional target levels of 3.4to 3.7mmol/l.[4]

Because beta-blockers are beneficial in the treatment of acute myocardiac infarction, early initiation of treatment may have additional benefit. The benefits of treatment are observed for at least 1-2 years after myocardiac infarction. Blood pressure level is strongly related to the risk of vascular events in subjects with widely varying risks of coronary heart disease. Clinical trials of blood pressure reduction in subjects without established heart disease have demonstrated that blood pressure reduction reduces risk of cardiovascular events, cardiovascular mortality and all cause mortality.

Surgical procedure

Coronary artery bypass graft surgery improves survival in moderate and high risk patients. The greatest benefits are obtained by moderate and high risk patients with persistent angina who obtain both symptomatic and prognostic benefits. In a moderately sized randomized control trial of revascularization in 558 patients with documented myocardial ishaemia but free from angina symptoms, a marked reduction in risk of death after vascularization was observed after 2 years follow up.[5]

Secondary prevention is an important and achievable component of public health strategies for

tackling cardiovascular disease world wide. For this to be achieved, a strong will and commitment from all concerned remains uncompromisable.

Table 1: Estimate of deaths (in thousands) due to cardiovascular disease and to infectious and parasitic diseases in patients age 30-69 by sex and region

Region	Men		Women	
	Cardiovascular disease	Infectious and parasitic disease	Cardiovascular disease	Infectious and parasitic disease
Established market economies	483	42	227	12
Former socialist economies	416	20	253	6
India	611	429	481	240
China	576	158	439	89
Other Asian pacific island countries	289	147	226	140
Sub- Sahara Africa	183	215	211	228
Latin America Caribbean	186	62	147	48
Middle east crescent	285	56	215	35
World wide	3028	1128	2201	798

Source: Yusuf S et al, Circulation 2001; 104:2746-2753

I. S. Abdulraheem, I. Katibi and B. A. Omotosho

[1]Departments of Epidemiology and Community Health, and [2]Medicine, College of Medicine, University of Ilorin, Ilorin, Nigeria
P. O. Box 5240, Central Post Office, Ilorin, Kwara State, Nigeria

References

1. The world health report 2002. Reducing risks, promoting healthy life. WHO, Geneva, 2002
2. MRC/BHF Heart protection study of cholesterol lowering with simvastat in 20,536 high risk individuals: a randomised placebo-controlled trial. Lancet 2002; 36:7-22
3. Wilson K, Gibson N, Willan A, Cook D. Effect of smoking cessation on mortality after myocardial infarction: meta-analysis of cohort studies. Arch Intern Med 2000; 160:939-944
4. Knatterud GL, Rosenberg Y, Campeau L et al. Long term effects on clinical outcomes of aggressive lowering of low density lipoprotein cholesterol levels and low dose anti-coagulation in the post coronary bypass graft trial. Post CABG investigators. Circulation 2000; 102:157-165
5. Davies RF, Goldberg AD, Forman S et al. Asymptomatic cardiac ischaemia pilot (ACIP) study two year follow up: outcomes of patients randomized to initial strategies of medical therapy versus revascularization. Circulation 1997;95:2037- 2043

.