

Symposium II. Prevention in Hypertension

Is Hypertension Preventable Disease: Primary and Secondary Prevention

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Abstract

Hypertension remains one of the most important preventable contributors to disease and death. A direct positive relationship between blood pressure and cardiovascular risk has long been recognized. This relationship is strong, continuous, graded, consistent, independent, predictive and etiologically significant for those with and without coronary heart disease. It has been identified in both men and women, younger and older adults, different racial and ethnic groups, different countries and applies to those with high-normal blood pressure as well as those with hypertension.

Raised blood pressure is estimated to cause about 7 million premature deaths throughout the world, and 4.5% of the disease burden (64 million disability-adjusted life years (DALYs)). It is a major risk factor for cerebrovascular disease, coronary heart disease, and cardiac and renal failure. Treating raised blood pressure has been associated with a 35–40% reduction in the risk of stroke and at least a 16% reduction in the risk of myocardial infarction. Raised blood pressure often coexists with other cardiovascular risk factors, such as tobacco use, overweight or obesity, dyslipidaemia and dysglycaemia, which increase the cardiovascular risk attributable to any level of blood pressure. Worldwide, these coexisting risk factors are often inadequately addressed in patients with raised blood pressure, with the result that, even if their blood pressure is lowered, these people still have high cardiovascular morbidity and mortality rates.

Primary prevention of hypertension

Primary prevention includes health promotion and protection involving education in personal health and development, proper nutrition, adequate exercise, and a safe living environment

Primary prevention aims to prevent disease or injury before it ever occurs. This is done by preventing exposures to hazards that cause disease or injury, altering unhealthy or unsafe behaviours that can lead to disease or injury, and increasing resistance to disease or injury should exposure occur.

Hypertension can be prevented by complementary application of strategies that target general population and individuals and group at higher risk for high blood pressure. Lifestyle interventions are more likely to be successful and the absolute risk reductions in risk of hypertension are likely to be greater when targeted in persons who are older and those who have a higher risk of developing hypertension compared with their counterparts who are younger and have a lower risk. However, prevention strategies applied early in life provide the greatest long-term potential for avoiding the precursors that lead to hypertension and elevated blood pressure levels and for reducing the overall burden of blood pressure-related complications in community.

A population based approach aimed at achieving a downward shift in the distribution of high blood pressure in general population is an important component for any comprehensive plan to prevent hypertension. Public health approaches, such as lowering sodium content and caloric density in the food supply and providing attractive, safe and convenient opportunities for exercise are ideal population-based approaches for reduction of average blood pressure in the community.

More intensive targeted approaches, aimed at achieving greater reduction in those who are most likely to develop hypertension complement the previously based strategies for prevention of hypertension. Groups at high risk of hypertension include those at high normal blood pressure, a family history of hypertension, African American black ancestry, overweight or obesity, a sedentary life style, excess intake of dietary sodium, insufficient intake of potassium, or excess consumption of alcohol.

Secondary prevention of hypertension

Secondary prevention relies on early detection of disease process and application of interventions to prevent progression of disease. Secondary prevention includes screening for disease progression and taking preventative measures in order to limit further complications. **Secondary prevention** aims to reduce the impact of a disease or injury that has already occurred. This is done by detecting and treating disease or injury as soon as possible to halt or slow its progress, encouraging personal strategies to prevent reinjury or recurrence, and implementing programs to return people to their original health and function to prevent long-term problems. Abundant evidence from randomized controlled trials (RCTs) has shown benefit of antihypertensive drug treatment in reducing important health outcomes in persons with hypertension.

Despite relatively recent declines in age-adjusted mortality, in 2013, cardiovascular disease (CVD) was the primary cause in nearly 801,000 deaths (30.8% of total deaths) in the United States. In fact, CVD has been the leading cause of death in the United States for the past 100 years, except for 1918. Although CVD age-adjusted death rates are reportedly declining in the United States, they are increasing in many developing countries, such that CVD is now the leading cause of death globally as well.

High blood pressure is the most important modifiable risk factor for stroke, accounting for more than 50% of the population-attributable fraction for stroke. There is now strong evidence from randomized trials that blood pressure-lowering treatment is one of the most effective and generalizable strategies for secondary prevention of stroke. Once the patient with stroke has stabilized, all patients should receive blood pressure-lowering therapy, irrespective of their blood pressure levels.

Among patients with clinical history of CVD but without hypertension, antihypertensive treatment was associated with decreased risk of stroke, CHF, composite CVD events, and all-cause mortality. Life style and pharmacological therapy made optimal mean blood pressure in hypertensive men and women with coronary heart disease.

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