The Malignant Threat of Hypertension

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Hypertension is one of the leading causes of cardiovascular disease worldwide. More than 1.5 billion individuals will suffer hypertension by the year 2025. This condition will account for up to 50% of heart disease risk and 75% of stroke risk.[1] Moreover, hypertension presently accounts for direct global health costs estimated to be more than 400 billion dollars.[2] High blood pressure defined as systolic pressure >140 and diastolic pressure >90 mmHg is a significant problem in both the United States and China. Over 73 million Americans or one in three adults have hypertension.[3] In a national household survey conducted in China in 2002 the prevalence of hypertension in those 18 years and older was found to be 19%. This figure translates into more than 160 million hypertensive individuals.[4] The growing rate of obesity and high intake of sodium in the diet both in the United States and China are likely reasons for the increase in hypertension rates.

Hypertension prevention and treatment includes both lifestyle interventions of weight loss, sodium restriction, adoption of the DASH diet, exercise and alcohol restriction. Studies such as the DASH and PREMIER trials suggest that weight loss and dietary changes can significantly lower systolic and diastolic blood pressure and should be more readily adopted in community settings.[5,6] Increasing fruit and vegetable intake and decreasing saturated fats as well as improving exercise have the potential to not only effect hypertension but the associated CVD risk factors of dyslipidemia and diabetes.

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Contemporary meta-analysis comparing various antihypertensive medications used in blood pressure trials of 168,593 individuals suggests that the majority of reduction in CVD endpoints is due to the lowering of blood pressure rather than the choice of agent used to manage hypertension.[7] The majority of these trials resulted in the lowering of blood pressure to approximately 135/75 mmHg.[7] Ensuring patient adherence to antihypertensive regimens is important to increasing better overall hypertension control. Data suggests that at least 50% of patients taking anti-hypertensive regimens may discontinue therapies by one year.[8] Efforts must also be instituted to focus on the patient's acceptance of the medication regimen, how well it is executed and whether persistence continues beyond one year.

Home blood pressure monitoring (HBPM) has served as an effective method for improving the diagnosis of white coat and masked hypertension, and to improve medication adherence and control. Many organizations within the United States, Europe and Asia recommend the use of home blood pressure monitoring in the majority of individuals with hypertension. Ensuring the appropriate blood pressure technique, frequency and scheduling of measurement, and evaluating the need for ambulatory versus HBPM helps clinicians obtain important information to guide decisions about management.[9] Moreover, HBPM offers the physiologic feedback needed for patients to observe their blood pressure values. This is especially important due to hypertension being an asymptomatic condition.

Managing resistant hypertension is also critical to better blood pressure control. Data from ALLHAT indicates that 27% of individuals were on three or more medications with blood pressures still not at goal.[10] Predictors of resistant hypertension from ALLHAT include older age, higher baseline systolic blood pressures, left ventricular hypertrophy, obesity, chronic

kidney disease (CR>1.5 mg.dL), diabetes, living in the southeast part of the U.S., African-Americans, and women.[10] The causes of resistant hypertension include pseudoresistance, white coat effect, lifestyle factors, drug-related causes and secondary causes. A treatment algorithm should be followed to better manage this condition.[10]

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