ORIGINAL ARTICLE

Hypertension - Major Risk for Cardiovascular Diseases

ZAHID RAFIQUE BUTT[1], MUHAMMAD ZAFAR IQBAL[2], JAHANZEB KHAN[3]

ABSTRACT

Background: Hypertension is quantitatively the major risk factor for premature cardiovascular disease, being more common than cigarette smoking, dyslipidemia, and diabetes, the other major risk factors.
Aim: To evaluate the cardiovascular risks of hypertension.
Methods: This prospective study was carried out in outdoor of Multan Institute of Cardiology, Multan during the period from January 2008 to December 2008. A total of 100 individuals were included in the study who was attending outdoor of the hospital.
Results: Current risk status of the 100 subjects who developed cardiovascular disease (myocardial infarction, angina, coronary bypass surgery, angioplasty, or stroke) during the study period was compared with healthy subjects, there were few differences. However, the results were different when the original risk status was used. Those patients who remained healthy had had significantly lower blood pressure (121/79 vs 134/83mmHg) and plasma cholesterol levels (211 vs 226mg/dL [5.45 vs 5.84mmol/L]) 25 years before.
Conclusion: Antihypertensive drugs should be instituted if, after several different blood pressure measurements, the average blood pressure is above 140/90.
Keywords: Cardiovascular disease, Dyslipidemia, Antihypertensive drugs

INTRODUCTION

Hypertension is quantitatively the major risk factor for premature cardiovascular disease, being more common than cigarette smoking, dyslipidemia, and diabetes, the other major risk factors[1]. In the worldwide inter heart study of patients from 52 countries, hypertension accounted for 18 percent of the population attributable risk of a first MI[2]. Hypertension leads to left ventricular hypertrophy, and it increases the risk for a variety of cardiovascular diseases. These include stroke, coronary artery disease, heart failure, and peripheral vascular disease. Increased mortality is also observed with elevations in blood pressure. Coronary disease in men and stroke in women are the principal first cardiovascular events noted after hypertension onset, as observed from data from the Framingham Heart Study[3].

The risk for both coronary disease and stroke increases progressively with every increment in blood pressure above 110/75mmHg. This has been demonstrated in epidemiologic studies in the general population[4-8] and in patients with known coronary disease[9]. However, these observations do not prove a causal relationship, since increasing blood pressure could be a marker for other risk factors such as increasing body weight, which is associated with dyslipidemia, glucose intolerance, and the metabolic syndrome. The best evidence for a causal role of increasing blood pressure in cardiovascular complications is an improvement in outcome with antihypertensive therapy. The increase in cardiovascular risk has primarily been described in terms of systolic and diastolic hypertension. There is also evidence that the pulse pressure, which is the difference between the systolic and diastolic blood pressures and is determined primarily by large artery stiffness, is a predictor of risk.

[1]CPE Institute of Cardiology Multan, [2]Department of Medicine Nishtar Medical College Multan, [3]Department of Medicine, Bolan Medical College Quetta
Correspondence to Dr. Zahid Rafique Butt, Asstt. Professor,

SUBJECTS AND METHODS

This prospective study was carried out in outdoor of Multan Institute of Cardiology, Multan during the period from 11-1-2007 to 11-4-2007. A total of 100 individuals were included in the study who were attending outdoor of the hospital.

RESULTS

Current risk status of the 100 subjects who developed cardiovascular disease (myocardial infarction, angina, coronary bypass surgery, angioplasty, or stroke) during the study period was compared with healthy subjects, there were few differences. However, the results were different when the original risk status was used. Those patients who remained healthy had had significantly lower blood pressure (121/79 versus 134/83 mmHg) and plasma cholesterol levels (211 versus 226mg/dL [5.45 versus 5.84 mmol/L]) 25 years before.

DISCUSSION

A group from New Zealand has taken these risk factors into account in determining the overall risk status of individual patients, along with their level of blood pressure, age and gender.[10] They then examined the evidence of benefits of antihypertensive therapy from the clinical trials and considered the costs of such therapy, concluding that antihypertensive therapy can be justified only if the risk for a major cardiovascular event over the next 10 years was 20 percent or greater or if the level of blood pressure was so high as to mandate therapy regardless of overall risk status (170/100 mmHg). This approach requires that age, gender, and a number of cardiovascular risk factors be taken into account when considering when hypertension should be treated; the risk is lowest in younger patients, women, and those with no other risk factors[11].

Most physicians in the United States are probably unwilling to be as conservative as the New Zealand monogram recommends. They would almost certainly begin antihypertensive therapy in most patients with an overall 10-year risk of 10 percent or greater. In addition to the specific patient population[12], another problem with the use of such data is that the risk status that is currently assessed may not reflect what was present previously. This is an important issue because it is the prior risk status that is more likely to be responsible for the current health of the individual. As an example, although blood pressure at the time of risk assessment (current blood pressure) is typically used in most prediction algorithms, this does not accurately reflect an individual's past blood pressure experience; the use of long-term average blood pressure is more accurate. This is supported by data from the Framingham Heart Study, which found that recent and remote antecedent blood pressure (systolic, diastolic, and pulse pressure) predicted cardiovascular risk incrementally over current blood pressure.[13] This effect was seen in men and women, younger and older subjects, and lower and higher blood pressure groups. These data suggest that effective prevention of cardiovascular disease requires adequate blood pressure throughout life.

The potential magnitude of this problem has been documented in a follow-up of 1604 men whose risk status was first assessed when they were aged 45 to 64 and free of clinically obvious cardiovascular disease and then reassessed 25 years later when they were aged 70 to 90. Most patients changed their risk status over this time period, moving forward or backward. Since midlife values are more likely to represent lifelong exposure values that, in turn, make the main contribution to the development of atherosclerosis, investigators and clinicians may need to be cautious in using risk factor values measured late in life as the only means of assessing risk for subsequent disease.

CONCLUSION

Cardiovascular risk factors must be taken into account when deciding upon proper treatment in a patient with mild hypertension. Lifestyle modifications (nonpharmacologic therapy) should be recommended to all patients with blood pressures between 120 to 139/80 to 89 mmHg (now defined as prehypertension). Antihypertensive drugs should be instituted if, after several different blood pressure measurements, the average blood pressure is above 140/90.

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