World Hypertension Day 2007

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The World Hypertension League is encouraging all of us to focus our attention on hypertension through designation of May 17, 2007, as “World Hypertension Day.” Most of the readers of Hypertension will pay more attention to this encouragement than the average person. But, even many of us who focus much of our life on patient care or research related to hypertension need to pause and consider the importance of this often underappreciated risk factor for cardiovascular disease and kidney disease.

The recent results of a study of a drug used for treatment of lipid disorders have refocused our thoughts on the importance of hypertension as a risk factor for cardiovascular disease (CVD). Torcetrapib, a potent inhibitor of cholesteryl ester transfer protein that raises high-density lipoprotein cholesterol and lowers low-density lipoprotein cholesterol has been in development for several years. Early studies were quite promising. They demonstrated substantial increases in high-density lipoprotein cholesterol and modest decreases in low-density lipoprotein cholesterol. There was great optimism in the cardiovascular medicine community for this new tool.

Early findings of mild increases in both systolic and diastolic blood pressure with the drug were not considered by most to be a major problem, because the increase was only 3 to 4 mm Hg in systolic pressure. But in December 2006, a major study of the drug was stopped by the data safety monitoring board because of an increased rate of death from cardiovascular events in patients treated with this drug. Within hours, the company developing the drug stopped all studies with torcetrapib and announced that it would not pursue further efforts for approval of the drug by the US Food and Drug Administration. The US Food and Drug Administration confirmed that it agreed with this decision.

Though complete data from this trial are not yet publicly available, the reported evidence suggests that the potential benefit from raising high-density lipoprotein cholesterol and lowering low-density lipoprotein cholesterol was more than offset by increased risk from raising the systolic blood pressure by 3 to 4 mm Hg. What a powerful reminder of the risk associated with increased blood pressure.

Although some might argue that a 3- to 4-mm Hg increase in blood pressure is not clinically significant, clinical trials and population studies remind us of the importance of these seemingly small changes. A recent 1-million-patient meta-analysis, for example, suggests that a 3- to 4-mm Hg systolic increase in blood pressure would translate into a 20% higher stroke mortality and a 12% higher mortality from ischemic heart disease. In patients with additional risk factors, including obesity, diabetes, and hyperlipidemia, the impact of these small changes in blood pressure on CVD is even greater than in the general population.

Along with the disappointment that many of us experienced with the news from this trial comes a renewal of hope that appropriate and more rigorous management of blood pressure can save many lives. Certainly, the addition of a drug that would improve cardiovascular protection by raising high-density lipoprotein cholesterol would be welcome by all of us interested in preventing CVD. But the reminder of the power of blood pressure should point us toward additional effort on this important risk factor.

We should not need reminding, as the evidence for saving lives by lowering blood pressure has been so strong for so long. Decades before we had confirmation that lowering cholesterol with statins was useful for primary prevention of CVD, we had this evidence for lowering blood pressure. And studies in recent years have added weight and perspective to this. The United Kingdom Prospective Diabetes Study, for example, demonstrated clearly that, in diabetic patients, successfully managing hypertension was more beneficial in preventing cardiovascular events than managing the diabetest. And the evidence from the ambulatory blood pressure monitoring substudy of the Heart Outcomes Prevention Evaluation Study convinced many of the dramatic benefits of small decreases in blood pressure, even in persons without hypertension by our current definitions.

The Antihypertensive Lipid-Lowering and Heart Attack Trial Study provided 2 key findings that bring optimism about blood pressure management. This study confirmed that blood pressure therapy with several different antihypertensive classes provided a mortality benefit. This message that inexpensive drugs were effective in reducing cardiovascular deaths was important in the approach to managing hypertension as the problem spreads around the globe. The second key lesson from the Antihypertensive Lipid-Lowering and Heart Attack Trial Study was that blood pressure control rates could be much better than what is commonly seen in practice.

So, on World Hypertension Day, we should look with optimism at what can be done to improve cardiovascular risk around the world through focusing on better management of hypertension. As we continue to perform research seeking better understanding of blood pressure regulation and better

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approaches to therapy, we should evaluate what can be done to better apply what we know leading to the prevention of deaths worldwide.

The importance of CVD as the leading cause of death around the world is becoming increasingly clear. CVD has replaced infectious disease as the leading cause of death in almost every country.\textsuperscript{10} The number of hypertensive persons worldwide in 2000 was estimated at 972 million people. By the year 2025, it is estimated that 1.56 billion persons will have hypertension.\textsuperscript{11} And in most of the world, hypertension is the key risk factor driving increased CVD. The World Health Organization estimates that 50\% of the coronary heart disease and 75\% of stroke is because of higher than ideal blood pressure levels.\textsuperscript{12} This rapid growth in hypertension has been fueled by 2 key factors: the increased aging population allowed by better control of communicable diseases and, importantly, the rapid growth in the rates of overweight and obesity around the globe.\textsuperscript{13}

In summary, CVD is the leading cause of death around the world. Hypertension is the most common reversible risk factor for CVD for most of the world. Increasing body weight is fueling a rapid rise in the prevalence of hypertension around the world. The evidence that lowering blood pressure reduces the risk for morbidity and mortality is overwhelming. Safe, effective, and inexpensive treatment options are available everywhere for the management of hypertension. Control rates for persons with hypertension are below 30\% in most countries, despite calls for attention to this important issue.\textsuperscript{14–16}

On this World Hypertension Day 2007, it is time take some lessons from our friends in the infectious disease world. We should not lose sight of the fact that part of the growth in CVD mortality has been because of the successes in fighting infectious disease as a cause of death.

So, what should we do to make progress in this critical area? First, we must continue to invest in research. There was a time that the basic cause of most infectious diseases and the modes of transmission were poorly understood. Research provided the knowledge leading to currently used prevention methods, including vaccines and current treatment strategies that we take for granted, like antibiotics. We must not assume that death and disability from hypertension and CVD are inevitable. We must continue to seek better understanding, including the possibility of total prevention, through research.

Second, we must apply what we know better and more fairly. Even with infectious diseases, we sometimes forget to apply simple knowledge, such as hand washing, gained through research. Likewise, knowledge that we have in hypertension management applied better could save millions of lives today. This includes simple lifestyle measures, like increased exercise and reduced calories, and better use of medications to treat blood pressure to goal.

There is work to do for all of us involved in hypertension management and health care. Voluntary health agencies and professional societies can focus more efforts on helping patients, clinicians, and researchers, can commit to doing all in their power to improve hypertension care.

Disclosures

None.

References

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