Management of the Mildly Hypertensive Patient

To THE EDITOR:

In their recent paper, Alderman and Madhavan observe that there are risk factors other than the level of blood pressure which are significant and important predictors of cardiovascular disease morbidity and mortality, and that the population of "mild" hypertensives is heterogeneous with respect to these risk factors and with respect to ultimate risk of cardiovascular disease events. From these two observations, the authors conclude that the decision to treat individuals and/or groups of individuals with antihypertensive medication should not be based on blood pressure level alone. Rather, they suggest, this decision should take into account "available clinical, biochemical and behavioral as well as epidemiological data," as though the former were not derived from an epidemiologic data base.

Essentially all biological phenomena, including risk factors as well as manifestation of illness, are graded phenomena characterized best by distribution curves. Thus, the concept of relative risk is accepted. For example, most smokers do not develop either lung cancer or clinically significant chronic lung disease, and most patients with untreated pneumococcal pneumonia will not die of infection. All therapeutic strategies in medicine designed to improve the outcome attempt to favorably shift the distribution of outcomes, but rarely result in uniform prognosis.

The authors cite the value of treatment of diastolic blood pressure in excess of 114 mm Hg as determined by the VA Cooperative Group. However, they fail to point out the prognostic heterogeneity of diastolic blood pressures even in this range. That is, 61% of individuals in the placebo group had no reported events (terminating or nonterminating) over the course of the study. Thus, by the authors' argument, 61% of those actively treated were "condemn(ed) . . . to all the disagreeable effects of therapeutic intervention without any of its concomitant benefits."

Ultimately, we are forced to dichotomize our therapeutic decisions with regard to a quantitative disease, hypertension. The authors seem to argue that to treat a group in which the risk of a cardiovascular fatalit is 4% is unjustified because 96% will be treated without ever experiencing the adverse outcome. This is clearly a judgment issue about which there can be reasonable disagreement. To add in other cardiovascular disease risk factors simply widens the distribution of risks and shows persons with multiple risk factors to be at extremely high risk indeed. However, health care providers still must work down the curve and decide when not to treat mild hypertension alone. Adding other risk factors does not make the curve bimodal or dichotomous.

The Hypertension Detection and Follow-Up Program Cooperative Group (HDFP) demonstrated a 20% reduction in all cause mortality among mild hypertensives assigned to "stepped care" (or, as stated by the authors, 13 deaths prevented per 1000 treated per 5 years), and the Australian trial reported a 38% reduction (7.5 deaths prevented per 1000 treated per 5 years) in cardiovascular mortality among treated mild hypertensives when compared to a placebo group. Admittedly, most participants in either randomization arm of either study did not sustain a fatal event, and thus did not "benefit" from therapeutic intervention (although this argument omits consideration of prevention of nonfatal events).

These results provide an estimate of the magnitude of reduction of mortality when treatment is applied to a population of mild hypertensives. Whether such a reduction of risk warrants the decision to treat must remain a matter of judgment. Epidemiology only provides measurements; judgments based on these measurements must be made by policy makers or individual clinicians. One should remember that cardiovascular death is a low frequency event in populations. If therapeutic interventions are reserved for those with only the highest likelihood of fatal outcome, prevention of the vast majority of cardiovascular mortality would not be addressed.

References

2. Veterans Administration Cooperative Study Group on Antihypertensive Agents: Effects of treatment on morbidity in hypertensive adults: Results in patients with diastolic blood pressure averaging 115 through 129 mm Hg. JAMA 202: 1028, 1967

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AUTHORS' RESPONSE:

Drs. Polk and Taylor have called attention to the fact that risk benefit analysis, in some form, is the process through which many medical care decisions are made. They further suggest that the situation in regard to the management of mild hypertension is essentially similar to many of these issues.

While agreeing with their overriding thesis, we take exception to the contention that the specific illustrations described are analogous to the problems of hypertensive therapy, or useful in its resolution. For example, there is little in the way of downside risk in not smoking, which is, of course, not a disease but a behavioral characteristic. Thus, in seeking to save health and life, most health professionals can comfortably recommend abstinence. Also, pneumococcal pneumonia is an acute condition characterized by a well-defined clinical presentation and course. Its treatment needs only be brief and carries a risk that is precisely known. Under these circumstances, an accurate risk benefit analysis can produce a powerful argument for intervention.

Extending the logic derived from these more discreet examples to the question of mild hypertension is to distort the process. Homogeneity is the hallmark of pneumococcal pneumonia — a disease whose cause, course, and prognosis is known. By contrast, heterogeneity is the hallmark of mild hypertension. Not only are adverse outcomes rare, but they are not easily predicted on the basis of initial blood pressure level. It is not even certain that blood pressure elevation will be sustained. In the Australian study, 78% of the untreated subjects whose initial blood pressure was 100-104 mm Hg had pressures less than 100 mm Hg 4 years later. More important, these untreated individuals whose pressures fell were at the same risk of developing cardiovascular complications as if their pressure had been reduced by chemotherapy.

Thus, while a therapeutic strategy may seem to shift the distribution of outcomes in a favorable direction, the gross way of evaluating interventions may obscure its total impact. The fact is that the potential harm of life-long therapy is simply not known. The disturbing inconsistency of response to therapy in terms of sudden death and myocardial infarction is a cause of concern. These potential hazards, coupled with the associated modest but unpredictable benefit, lead us to believe that the need now is to develop means to identify, in advance, those mild hypertensives at risk of cardiovascular disease (CVD) and likely to benefit from therapy.

We strongly agree with Drs. Polk and Taylor that the decision to treat or to withhold therapy should not be made solely on the basis of epidemiological data. Risk and benefit ratios were presented to facilitate a more informed judgment which, we believe, must be made on an individual basis. Just because CVD mortality is of such low risk we are moved, in the absence of complete information, to urge for a consideration of other relevant factors before deciding the treatment strategy.

We certainly agree that prognostic heterogeneity is also a characteristic of patients whose diastolic pressures exceed 114 mm Hg. Our paper focused on those with lower pressures simply because, from a clinical point of view, that is where the dilemma lies. The number of persons with the highest pressures is small, and the risk of disease in the absence of therapy is enormous. In a sense, this situation makes for an easier cost/benefit analysis and renders the clinician's decision-making far less tortuous than is the case in the vastly more common and uncertain setting of mild hypertension.

In sum, this is precisely where we differ from Drs. Polk and Taylor. While endorsing their view that therapeutic intervention must be a matter of judgment, we believe that such judgments can be taken in a standardized fashion only when the evidence is overwhelming. Mild hypertension just does not present such a case. We therefore believe that a cautious therapeutic decision can best be made by a careful assessment of all relevant data on each individual in addition to the facts available from studies on population groups.

References

3. Veterans Administration Cooperative Study Group on Antihypertensive Agents. Effects of treatment on morbidity in hypertension: Results in patients with diastolic blood pressure averaging 115 through 129 mm Hg. JAMA 202: 1028, 1967

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