DR. HERBERT CHASIS has long been known for his skepticism with respect to the treatment of hypertension. Indeed, it was the skepticism of Drs. Goldring, Chasis and Perera which served as an important stimulus in planning the Veterans Administration Cooperative Study.

Dr. Chasis completely rejects the concept that the cardiovascular damage seen in hypertension is the consequence of the elevated blood pressure. To him the cardiovascular pathology is independent of the blood pressure. It follows, therefore, that antihypertensive therapy cannot prevent further cardiovascular damage or complications. I believe this is why Dr. Chasis makes such unusual interpretations of the available data.

His main attack is on the results of the Veterans Administration Cooperative Study. Unfortunately, he begins with an error of fact. With respect to the first report of the Veterans Administration Cooperative Study Group the numbers of patients randomized were 70 in the control group, not 63 as stated by Chasis, and 73 not 68 in the treated group. Dr. Chasis notes correctly that there were 27 patients with severe complications in the control group and only 2 in the treated group. He attempts to explain this difference by the fact that the control patients may have had more severe vascular disease prior to randomization than did the treated group.

It should be noted that patients were randomly assigned double-blind to one regimen or the other. Thus, the chance that biased selection of patients could account for the observed 27 to 2 ratio of morbid events must be of the order one in a thousand or higher. To support his contention that randomization did not establish an equal distribution Dr. Chasis notes that there were 27 patients with severe complications in the control group and only 2 in the treated group. He attempts to explain this difference by the fact that the control patients may have had more severe vascular disease prior to randomization than did the treated group.

Many of the confusion arises from the fact that Dr. Chasis fails to differentiate between the prognosis in labile as compared to more stabilized forms of hypertension. It is impossible to consider the prognosis in essential hypertension in a meaningful way unless these differences are taken into account. For example, Mathisen and his associates found that the death rate per 1000 years of observation in un-
treated men with mild to moderate essential hypertension was 20.3 for the labile group and 99.8 or 5 times higher for the group with more stabilized diastolic hypertension. Labile hypertension was defined as a fall in diastolic blood pressure below 95 mm Hg during bed rest and sedation. Our patients also had persistent diastolic hypertension in that the average remained above 89 mm Hg from the fourth through the sixth hospital day. High risk patients such as were present in the Veterans Administration are not uncommon although they need to be knowledgeably identified and differentiated from the labile group.

Dr. Chasis calls attention to the nature of the 27 complicating events that occurred in the control group. He notes that 12 of these 27 consisted of either elevation of blood urea nitrogen, appearance of striate hemorrhages or cotton wool exudates in the optic fundi, or elevation of diastolic blood pressure to 140 mm Hg or higher. Dr. Chasis then makes the following astonishing statement, "These end points have the inherent weakness of representing spontaneously reversible events in the course of hypertensive disease." Spontaneous reversion, however, is decidedly rare in my experience and in the experience of most other observers. For example, Pickering emphasizes that neuroretinopathy rarely clears until the blood pressure is brought down. Prior to the treatment era when a patient developed funduscopic changes, high diastolic blood pressure and azotemia they progressed with only rare exceptions to fatal complications within a few months to a few years.

Dr. Chasis next turns to the report on the patients with initial diastolic blood pressures of 90-114 mm Hg, the so-called mild and moderate hypertensives. In this instance he does not dispute the effectiveness of treatment although we had made a special point of emphasizing that our data while demonstrating the effectiveness of treatment in patients with diastolic blood pressures of 105 mm Hg or higher left unanswered the question as to the effectiveness of treatment in patients with blood pressures in the 90-104 range.

Dr. Chasis seems to be confused about the relationship of hypertension, vascular disease and morbidity. Repeatedly he stresses that the high risk patients were those with the most vascular disease and argues that it is the vascular disease and not the hypertension which produces the vascular disease. When a patient manifests vascular disease it means he has had hypertension for a long period of time or that it has been so severe as to produce an imminent threat of a complication. The Veterans Administration Study, in essence, showed that treatment reduced that threat.

Dr. Chasis rightly calls attention to the failure of the Veterans Administration Study to demonstrate a protective effect of treatment against coronary artery disease. In our reports we were careful to point out that the results demonstrated effectiveness of treatment in "hypertensive" complications but not against "atherosclerotic" complications. However, this does not prove that a protective effect might not be demonstrable if treatment were started at a younger age and at an earlier stage of the hypertension.

Dr. Chasis also is correct in pointing out that our population of patients had more vascular disease and were at higher risk than a population that would be selected from the community at large. All of our patients had sustained hypertension in that their diastolic blood pressure averaged 90 mm Hg or higher from the fourth through the sixth day of hospitalization. They also exhibited more vascular damage and were further along in their disease than the average patient. These considerations, however, do not negate the results of the study. The point is still valid that under well controlled conditions a highly significant protective effect of treatment was found in the patients with diastolic blood pressures of 105 mm Hg or above. Further studies are needed to determine whether patients with lower levels of blood pressure will be benefited by treatment.

Untreated diastolic hypertension of 105 mm Hg or above if sustained leads eventually to vascular damage. The results of the various trials that have been carried out all agree that if the blood pressure is controlled this progression of cardiovascular disease is considerably reduced or prevented. Those who overlook, misconstrue or misinterpret these data do so at their own peril and their patients' peril.

References
1. VETERANS ADMINISTRATION COOPERATIVE STUDY GROUP: 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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