

Treatment-Resistant Hypertension Common

BY SHERRY BOSCHERT

SAN FRANCISCO — Approximately 16% of 264,697 patients in a community-based practice network had treatment-resistant hypertension in 2007.

The true prevalence may be 8%-11% after adjustment for pseudoresistance, which previous studies suggest accounts for 30%-50% of suspected treatment-resistant hypertension, Dr. Brent M. Egan said at the annual meeting of the American Society of Hypertension.

At the same time, many of these patients are undertreated. Only two or fewer antihypertensive medications were prescribed for 60% of 49,043 patients who had diabetes or chronic kidney disease plus uncontrolled hypertension and for 78% of 66,337 patients who had uncontrolled hypertension without the other two cardiovascular risk factors. If those subgroups were more aggressively treated with three or more antihypertensives, the prevalence of truly treatment-resis-

tant hypertension might be closer to 20%-30%, estimated Dr. Egan, professor of medicine and director of the Hypertension Initiative at the Medical University of South Carolina, Charleston.

The findings have significant implications as the U.S. population becomes older and more obese with more complex medical histories and more kidney disease. Practical clinical trials are needed to address the contributors to uncontrolled hypertension, such as therapeutic inertia and the limited effectiveness of current antihypertensive drug regimens, Dr. Egan suggested.

He and his associates analyzed observational data collected from the electronic medical records of more than 150 community-based practices in the multistate Hypertension Initiative.

Resistant hypertension is defined as having a blood pressure above goal while on a regimen of three or more antihypertensive medications, or having controlled blood pressure while on four or

more antihypertensives. Pseudoresistance to treatment can result from patients not taking prescribed medications, inaccurate blood pressure measurement,



No medications were prescribed for 26%-32% of hypertensive patients without diabetes or kidney disease.

DR. EGAN

white-coat hypertension, or inadequate therapy. The current study could assess only the medications prescribed, not whether patients adhered to therapy.

Blood pressure goals for hypertensive patients without diabetes or chronic kidney disease were less than 140/90 mm Hg. Blood pressure goals for hypertensive patients with diabetes or chronic kidney disease were less than 130/80 mm Hg.

Blood pressure was uncontrolled in 36% of patients without diabetes or kidney disease and in 60% of patients with those diseases. African Americans were more likely than were whites to have uncontrolled hypertension.

Physicians were more aggressive in treating hypertension in patients with diabetes or kidney disease, prescribing three or more antihypertensives in 35% of patients who achieved goal and 39% of those who did not. Among patients without diabetes or kidney disease, 17% who achieved goal and 22% who did not reach goal received three or more drugs.

Still, that left large numbers of patients who were given two or fewer medications, Dr. Egan noted. No antihypertensives at all were prescribed for 13%-15% of hypertensive patients with diabetes or kidney disease and for 26%-32% without diabetes or kidney disease.

Dr. Egan has had financial relationships with several makers of antihypertensive medications. ■

Cytokine Levels Differ in Black, White Hypertensives

BY PATRICE WENDLING

CHICAGO — Plasma levels of the proinflammatory cytokines tumor necrosis factor- α and interleukin-6 were surprisingly higher in whites vs. blacks with hypertension in a pilot study of 46 patients.

Tumor necrosis factor (TNF)- α was 1.19 pg/mL in 14 white hypertensive patients, compared with 0.62 pg/mL in 12 black hypertensive patients.

Interleukin-6 (IL-6) levels were higher in whites at 1.31 pg/mL vs. 0.79 pg/mL in blacks, Dr. Ralph Watson said at a meeting sponsored by the International Society on Hypertension in Blacks. The difference between groups did not reach statistical significance for either cytokine, likely because of small patient numbers.

The finding is surprising because inflammation is thought to be one of the driving forces behind high blood pressure and end-organ damage, both of which have been shown in several studies to be worse in black than in white hypertensives.

In addition, the few studies that have compared IL-6, TNF- α , or C-reactive protein levels in blacks and whites have found either higher levels in blacks or no difference between races.

Dr. Keith Norris, ISHIB conference cochair and interim president of Charles Drew University in Los Angeles, called the data provocative and asked whether weight could be driving the finding. Dr. Watson acknowledged that white hypertensives were slightly heavier at a mean weight of 202 pounds than were African Americans at a mean weight of 193 pounds.

White hypertensives had a slightly lower mean blood pressure of 128/78 mm Hg vs. 134/85 mm Hg for blacks. Members of both groups were aged 59 years, but

were on a variety of different antihypertensive medication regimens that may have affected their IL-6 or TNF- α levels, said Dr. Watson, director of the hypertension clinic at Michigan State University in East Lansing.

IL-6 levels were significantly higher in the 26 patients with hypertension than in the 20 normotensive patients (1.34 vs. 0.60 pg/mL), as were TNF- α levels (1.06 vs. 0.46 pg/mL). This finding confirms several previous studies showing increased levels of inflammatory cytokines in patients with prehypertension and hypertension.

Still, the relationship between inflammation and hypertension remains unclear, Dr. Watson said. IL-6 and TNF- α are produced and secreted mainly by activated tissue macrophages in response to injury or infection, and act on endothelial cells at the DNA transcription level. The inflammatory response, however, is also closely intertwined with the process of repair.

"Blacks have far more strokes, end-stage renal disease, and coronary artery disease as a result of their hypertension than whites, and the assumption has been that this is because of increased inflammation contributing to the damage," Dr. Watson said in an interview. "The question now is whether a lack of inflammation repair of the endothelial damage caused by hypertension could be contributing to the elevated rates of end-organ damage we see in black hypertensives."

Dr. Watson and colleagues are planning to validate the findings in another 50 black and white hyper- and normotensive patients.

The study was funded by a grant from the National Institutes of Health. The investigators disclosed no relevant conflicts of interest. ■

Diagnostic Algorithm Proposed For Pulmonary Hypertension

BY DOUG BRUNK

SAN DIEGO — Combining an electrocardiogram with serum N-terminal pro-B-type natriuretic peptide measurements is a simple, noninvasive way to diagnose pulmonary hypertension, results from an Austrian study suggest.

"Current pulmonary hypertension diagnosis guidelines say that ECG alone is not useful in the diagnosis of pulmonary hypertension," Dr. Diana Bonderman said in an interview at an international conference of the American Thoracic Society. "But if you combine ECG with NT-proBNP [N-terminal pro-B-type natriuretic peptide], it's going to be useful."

The finding is clinically important, she said, because the growing awareness of pulmonary hypertension (PH), a high prevalence of postcapillary PH, and the inability to discern between pre- and postcapillary PH by transthoracic echocardiography (TTE) "have led to unnecessary right heart catheterizations."

She and her associates prospectively analyzed data from 121 patients referred to the Medical University of Vienna between April 2007 and October 2008 for clinical and transthoracic echocardiographic suspicion of precapillary PH (systolic pulmonary artery pressure of 36 mm Hg or greater). On admission, all patients underwent TTE, serum analysis including NT-proBNP, a 6-minute walk test, and blood gas analysis.

The patients were then assigned to one of two predicted diagnostic

groups: precapillary PH (defined as right ventricular strain on ECG and/or serum NT-proBNP of greater than 80 pg/mL) or no precapillary PH. Next, all patients underwent right heart catheterization, and a final diagnosis was established.

The mean age of the patients was 62 years and 59% were female, re-



This approach to diagnosis 'may significantly reduce the number of invasive assessments.'

DR. BONDERMAN

ported Dr. Bonderman, a cardiologist at the Medical University of Vienna.

By right heart catheterization, only 64 (53%) patients were diagnosed with precapillary PH. Precapillary PH was ruled out in 57 (47%) patients. By the diagnostic algorithm, 15 patients (12%) had been correctly allocated to the group without precapillary PH (true negatives). None of the allocations was a false negative.

"In the diagnostic pathway of PH, integration of the proposed algorithm subsequent to TTE may increase specificity from 0% to 19.3%, with a sensitivity of 100%," the researchers wrote in their poster. "The incorporation of ECG and NT-proBNP into the workup of PH provides incremental diagnostic value and may significantly reduce the number of invasive assessments."

The researchers had no conflicts of interest to disclose. ■