for its correlation with and low bias in estimating daytime ambulatory BP (2–4). Trial qualification requirements summarized in our paper are correct but incomplete: systolic blood pressure (SBP) ≥160 mm Hg according to the BpTRU protocol was mandatory, along with 2 office cuff readings of SBP ≥160 mm Hg within 3 months of enrollment. Resistant hypertension was assured by requiring 24-h average ambulatory SBP ≥135 mm Hg and ≥1 month of ≥3 concomitant antihypertensive medications.

Short-term assessment of baroreflex activation therapy (BAT) response was suboptimal, comprised by the BP difference between only 2 time points: months 0 and 6. Month 0 proved an inadequate baseline, whereas high intraindividual BP variability generated excess false-positive findings in the control group (1). Baseline measurement involving longitudinal BP free of surgical effects would presumably improve statistical power.

Dr. Tsioufis and colleagues postulate that ambulatory data would alleviate intrapatient BP variability. Although ambulatory BP could provide supportive findings, such as attenuation of morning surge, its correlation with BpTRU would make redundant much of the benefit. In any case, greater reduction of SBP and increased rate of attaining goal BP among patients receiving BAT stand as clear indicators of therapeutic benefit.

2. Are results uniformly consistent with the assertion that BP reductions ensue from BAT? Along with BpTRU measurements, data on vital signs, medications, and medication adherence were collected. Dr. Tsioufis and colleagues conjecture that BP reductions associated with BAT could result from intensified medical therapy. Between months 0 and 6, the number of prescribed medications decreased in groups A and B by 0.5 and 0.7, respectively (p ≤ 0.001). Medication remained reduced at month 12. No significant differences in number of medications or use of aldosterone antagonists were observed between groups A and B. Medication adherence was stable. Thus, increased medication was not responsible for the reductions in BP observed with BAT.

Dr. Tsioufis and colleagues suggest reductions in heart rate (HR) accompanying reduced BP could corroborate BAT efficacy. Despite the high prevalence of beta-blockers and sympatholytic agents, HR was significantly reduced among responders in group A (−4.2 beats/min; p = 0.01) but not in group B or among nonresponders in either group. More impressively, significant correlations were observed between reductions in BP and HR in group A at 6 and 12 months and in group B at 12 months (r = 0.21 to 0.26; all p ≤ 0.02) but not at 6 months. Thus, BP reductions with BAT were consistently correlated with reduced HR.

3. Is the risk–benefit profile of BAT appropriate for resistant hypertension? BP was clearly reduced among patients with resistant hypertension receiving BAT. Moreover, design of the next-generation implantable barostimulation device, the Barostim neo (CVRx, Inc., Minneapolis, Minnesota) emphasizes safety. To date, neo has demonstrated an excellent safety profile in 40 implanted patients in Europe and Canada. In addition to reaffirming the established clinical benefits of BAT, we expect to soon demonstrate safety of the Barostim neo in a randomized, controlled study of patients with resistant hypertension.

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Device Therapy in Heart Failure Patients With Chronic Kidney Disease

We read with great interest the recent article in the Journal of the American College of Cardiology by Cannizzaro et al. (1). The researchers provided a great overview of various trials in the use of implantable cardioverter-defibrillators (ICDs) and cardiac resynchronization therapy in patients with chronic kidney disease (CKD) and congestive heart failure (CHF).

According to the U.S. Renal Data System, more than half a million people were enrolled in the Medicare-funded end-stage renal disease program at the end of 2008. Cardiovascular deaths are the leading cause of mortality in patients with CKD. This increased risk of cardiovascular and all-cause mortality is apparent even in the early stages of the disease (2).

There is a dearth of randomized controlled trials investigating the use of therapies in CHF and CKD (3). ICDs are underutilized in patients with CKD and CHF. We had the opportunity to carry out a post hoc analysis addressing the impact of renal dysfunction on survival in a secondary prevention population from the AVID (Antiarrhythmics Versus Implantable Defibrillators) trial (4,5).
The AVID trial (n = 1,016) was a large multicenter randomized controlled trial designed to evaluate the role of ICDs versus conventional antiarrhythmic therapy in a secondary prevention population (6). Patients were assumed to have renal disease if they had glomerulonephritis, chronic kidney infections, acute tubular necrosis, renal insufficiency, or chronic renal failure. A single bout of hematuria, oliguria, renal calculi, or proteinuria did not signify kidney disease.

The AVID trial had 41 patients with renal disease in the ICD arm. We found out that renal disease was an independent predictor of all-cause mortality (n = 116; hazard ratio: 1.748; 95% confidence intervals: 1.01 to 3.01; p = 0.04) but not cardiac mortality (n = 80; hazard ratio: 1.623; 95% confidence intervals: 0.836 to 3.153; p = NS). The use of ICDs was protective for secondary prevention of cardiac (but not all-cause) mortality in patients with renal disease. Thus, cardiac mortality and not all-cause mortality would be a more appropriate endpoint in evaluating ICD use for secondary prevention of cardiac mortality in patients with renal disease.

We acknowledge that our study was limited because of the lack of estimated glomerular filtration rate values and information regarding the end-stage renal disease status of these patients. Our study, however, adds to the existing published reports on the use of ICDs in this cohort of patients. The use of ICDs in CKD and CHF will continue to grab the interest of future researchers because these conditions coexist in epidemic proportions.

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