Hypertension

RESEARCH LETTER

Initial Antihypertensive Prescribing in Relation to Blood Pressure Among Florida Medicaid and Medicare Recipients in the OneFlorida+ Research Consortium

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Early effective antihypertensive initiation leads to better outcomes for newly diagnosed patients with hypertension. Current guidelines recommend initiation of combination therapy, with ≥2 drugs, for patients with stage 2 hypertension (blood pressure [BP] ≥140/90 mm Hg).[1] However, few real-world studies have assessed initial antihypertensive treatment in the context of baseline BP.[2] Consequently, we examined initial antihypertensive treatment patterns among Medicaid and Medicare recipients with linked claims and electronic health record (EHR) in the OneFlorida+ Research Consortium (hereafter, OneFlorida+).

We conducted a cross-sectional study using a previously described cohort of Medicare- and Medicaid-insured adults (aged ≥18 years) with hypertension who were new antihypertensive users from 2012 to 2021.[3] Medicaid recipients were adult Floridians primarily having low incomes, and Medicare recipients were adult Floridians aged ≥65 years or with qualifying disability who had parts A, B, and D during the study period. From this cohort, we restricted the population to those with linked outpatient EHRs in OneFlorida+ from the putative prescribing visit. For each patient, we matched pharmacy fill records to the EHR-based outpatient prescribing visit by requiring matching National Provider Identifier and ensuring that EHR-based prescription records matched the pharmacy fill record on drug, dosage form, and provider National Provider Identifier for the outpatient visit where the initial antihypertensive medication was prescribed. Baseline BP was obtained from the prescribing visit and categorized according to current American Heart Association/American College of Cardiology guidelines as normal BP (systolic BP <120 mm Hg and diastolic BP <80 mm Hg), elevated BP (systolic BP 120–129 mm Hg and diastolic BP <80 mm Hg), stage 1 hypertension (systolic BP 130–139 mm Hg or diastolic BP 80–89 mm Hg), or stage 2 hypertension (systolic BP ≥140 mm Hg or diastolic BP ≥90 mm Hg). The number of antihypertensive medications was calculated from all antihypertensives that were started on the earliest fill date following the initial baseline BP, which included first- and second-line medications.

We assessed the prevalence of initiation of first-line antihypertensive classes, stratified by insurer (Medicaid/Medicare) and baseline BP. We also assessed the prevalence of combination therapy in the initial regimen in the context of baseline BP (and similarly stratified by the insurer) to evaluate whether higher baseline BP was associated with greater combination therapy; in sensitivity analyses, we also examined trends over time and stratified analyses by baseline chronic kidney disease status. Finally, we used logistic regression to determine age-adjusted odds of combination therapy (versus monotherapy) as a function of baseline BP.

Of 59 328 treated patients with hypertension with any linked (EHR claims) data, 2929 met our strict criteria for having linked data from the specific prescribing visit and had a BP recorded. Baseline characteristics are summarized in Figure (A). The mean±SD age for the Medicaid population

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was 43±13 years and, for Medicare, 66±12 years, and most patients (64% for Medicaid; 56% for Medicare) were women; 70% of Medicaid-insured individuals had stage 2 hypertension compared with 59% of Medicare-insured.

Initial antihypertensive classes were generally similar among Medicaid and Medicare recipients and varied little across baseline BP with regards to ACEI (Angiotensin Converting Enzyme), ARB (Angiotensin Receptor Blocker), and only modestly for thiazide initiation (Figure [B]). Conversely, calcium channel blocker (CCB) and β-blocker initiation varied substantially by baseline BP, with CCBs used much more often at higher baseline BP, whereas the converse was true for β-blockers. Initiation of monotherapy regimens was more frequent in those with the highest baseline BP (Figure [C]), regardless of payer. Sensitivity analyses examining trends over time and by baseline chronic kidney disease status revealed qualitatively similar results (data not shown). In age-adjusted analyses, Medicare recipients were 40% more likely than Medicaid recipients to initiate combination therapy. Interestingly, we observed qualitatively different associations between baseline BP and the likelihood of initiating combination therapy comparing Medicare versus Medicaid recipients (Figure [D]). Higher baseline systolic and diastolic BPs were each associated with lower odds of combination therapy in Medicare recipients, whereas higher systolic (but not diastolic) BP was associated with greater odds of initiating combination therapy in Medicaid recipients (systolic $P_{interaction}$<0.0001; diastolic $P_{interaction}$=0.032).

Our data suggest that office BP, at the time of prescribing, has relatively little effect on the choice of antihypertensive. Although CCB and β-blocker initiation varied substantially across baseline BP, these findings may reflect greater CCB initiation in hypertension without overt cardiovascular disease and greater β-blocker use in patients with cardiovascular disease but more controlled BP.[3] Additionally, monotherapy continues to dominate initial antihypertensive regimens, despite current guideline recommendations for individuals with significantly elevated BP. These findings were qualitatively consistent before and after the publication of the 2017 guidelines.

Limitations of the study include limited generalizability, as cohorts were created from Medicaid and Medicare recipients. Furthermore, we required patients to take an antihypertensive; consequently, our findings may not be generalizable to all prescribing patterns. Third, although we tried to ensure a cohort being treated for hypertension, medication indications were not available; thus,

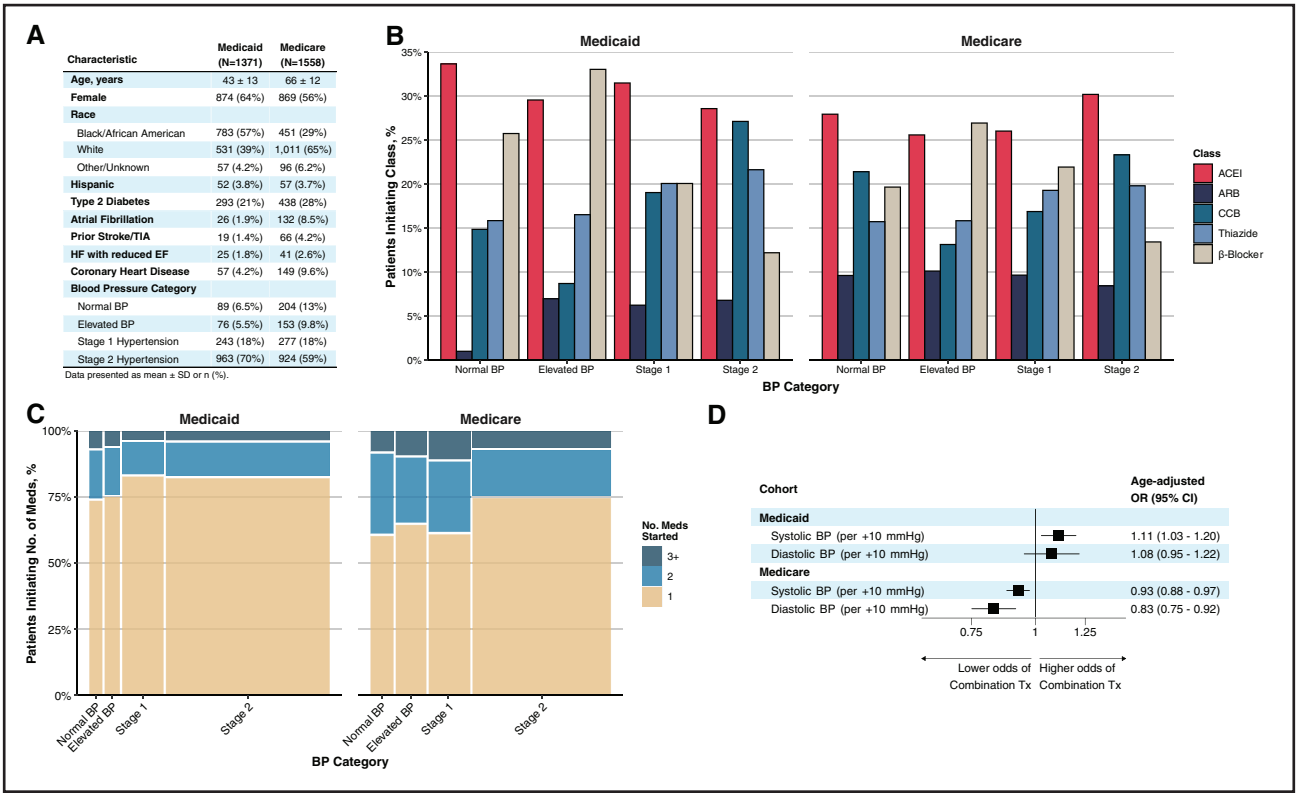

Figure. Baseline characteristics and results.

A, Baseline characteristics of the cohort, stratified by insurer. **B**, Proportion of patients among each blood pressure (BP) category who initiated each class, stratified by insurer. **C**, Proportion of patients starting 1, 2, or 3+ antihypertensive drugs, within each baseline BP category, and stratified by insurer. The width of each column in the plot is proportional to the proportion of the cohort that fell within the respective baseline BP category. **D**, Forest plot indicating odds ratios (ORs) and 95% CIs for age-adjusted analyses of the association between systolic and diastolic BPs (per 10 mm Hg) and the likelihood of initiating combination therapy. ACEI indicates Angiotensin-Converting Enzyme; ARB, Angiotensin-Receptor Blockers; CCB, calcium channel blockers; EF, ejection fraction; HF, heart failure; and TIA, transient ischemic attack.

it is possible that at least some patients were initially prescribed antihypertensive medication(s) for a nonhypertension indication. Relatedly, the data source did not allow us to measure some factors (eg, provider-perceived frailty), which might influence prescribing patterns and lead to appropriate, though not strictly guideline-concordant, therapy. Finally, we categorized baseline BP according to current guidelines released in 2017. Thus, some patients considered appropriate for combination therapy based on current guidelines would not have been strong candidates for combination therapy at the time BP was measured. Nevertheless, our sensitivity analyses suggested no substantial difference in the proportion of patients prescribed combination therapy before versus after the release of the 2017 guidelines.

We observed similar initial prescribing class patterns among Medicaid and Medicare patients across baseline BP. In the Medicare population, age-adjusted use of combination therapy was less likely at higher baseline BP, contrasting current clinical guidance. Additional research is needed to better understand why patients and providers remain hesitant to initiate combination therapy.

ARTICLE INFORMATION

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Disclosures

None.

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