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TRENDS IN ANTIHYPERTENSIVE DRUG PRESCRIPTION PATTERNS AMONG AMBULATORY STROKE PATIENTS IN THE US, 2000-2009

Bruce Ovbiagele, MD MSc MAS¹, Karin Ernstrom, MSc², Daniela Markovic, MSc³, and Rema Raman, PhD²

¹Department of Neurosciences, Medical University of South Carolina, Charleston, SC

²Department of Family and Preventive Medicine, University of California San Diego, CA

³Department of Biomathematics, University of California Los Angeles, CA

Abstract

Background—While the ambulatory setting is recognized as the best arena for optimizing antihypertensive drug treatment after a stroke, little is known about recent office-based antihypertensive drug treatment patterns in the United States. We assessed national trends in antihypertensive treatment of stroke patients in office-based medical practice.

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Address for Correspondence: Bruce Ovbiagele, MD MSc MAS Department of Neurosciences Medical University of South Carolina 96 Jonathan Lucas Street CSB 301, MSC 606 Charleston, SC 29425 Fax: 843-792-6995.

Author Contributions: Rema Raman PhD, Karin Ernstrom, MS and Daniela Markovic, MD had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. All authors were involved in the final decision to submit the manuscript.

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Methods—Data from the 2000-2009 National Ambulatory Medical Care Surveys were analyzed comprising outpatient visits to physicians in office-based practice by patients aged ≥ 40 years with a diagnosis of stroke (weighted estimate = 46,317,269). The main outcome measure was visits with a prescription of antihypertensive medication(s).

Results—The proportion of total visits that included a prescription of antihypertensive medication was 35.6% in 2000-2002, 29.5% in 2003-2005, and 49.3% in 2006-2009 ($p=0.002$); 50.9% were primary care physician (PCP) visits vs. 26.2% neurologist-visits (<0.0001). Age-adjusted logistic regression analyses confirmed a higher prescription rate in 2006-2009 vs. 2000-2002 (1.81, 95% CI=1.10-2.96) and PCP vs. neurologists (2.82, 95% CI=1.86-4.27). Use of two or more agent classes was 31.6% in 2000-2002, 44.2% in 2003-2005, and 56.7% in 2006-2009 ($p=0.014$). Age-adjusted logistic regression analyses confirmed a higher prescription rate of ≥ 2 agent classes in 2006-2009 vs. 2000-2002 (2.96, 95% CI=1.40-6.24). There were no significant differences in agent class type or number between neurologists vs. PCPs.

Conclusion—Over the last decade, there was a significant rise in use of antihypertensive drugs and combination of agent classes for patients aged ≥ 40 years seen in an ambulatory setting with a diagnosis of stroke. PCPs were more likely than neurologists to prescribe these agents.

Keywords

Comparative Effectiveness; Outcomes; Stroke, Ischemic; Blood Pressure; Hypertension; Prognosis; Health services; Antihypertensive therapy; Target goals; Intensive; Guidelines

INTRODUCTION

Despite significant advances in the prevention and treatment of strokes in the last few decades, stroke remains a leading cause of disability, dementia and death in the United States.¹ Mitigating the immense societal and personal burden of stroke will require a greater emphasis on prevention through enhanced identification and control of established risk factors.² Of the 795 000 new strokes in the United States that occur each year, up to a quarter are recurrent strokes,¹ and the risk of dying is 41% after a recurrent stroke vs. 22% after a first-time stroke.³ Recurrent stroke prevention tends to be most effective when implemented early, monitored frequently, and maintained long-term after an index stroke event.^{4,5} Among all the established risk factors for stroke, none may be more important than elevated blood pressure, given its strong pathophysiologic contribution to virtually all types of stroke, and the plethora of therapies available to treat it. Yet, a substantial proportion of patients with, or at risk of stroke, are either not receiving antihypertensive treatments, or do not have their blood pressure under control.^{6,7} Clinical trial evidence published over a decade ago indicated that antihypertensive drugs substantially lower recurrent stroke risk, even among stroke patients without hypertension.

Although hypertension is the premier treatable risk factor for recurrent stroke, and the most frequent principal diagnosis for ambulatory patients by US office-based physicians,⁸ research on factors that influence outpatient prescribing patterns and the extent of change produced by clinical trial findings among stroke patients is limited. Identification of variations in ambulatory practice among the clinicians who care for stroke patients may help

direct specific efforts geared at improving overall stroke patient outcomes.⁶ The objective of this study was to assess trends in antihypertensive drug prescription rates among patients with a history of stroke in the United States over the last decade.

METHODS

This study involved an analysis of the National Ambulatory Medical Care Survey (NAMCS) data, an administrative dataset, which can be found at <http://www.cdc.gov/nchs/ahcd.htm>. NAMCS is a national, probability-sample survey conducted by the National Center for Health Statistics, Centers for Disease Control and Prevention.⁹ It involves a continuing, in-person physician office survey of the non-federally employed US physicians providing office-based patient care conducted annually by the National Center for Health Statistics (NCHS).⁹ NAMCS has been used previously to assess the characteristics of US office-based physicians, physician practice trends, and trends in ambulatory utilization.^{8,10-13}

The NAMCS sampling frame consists of all physicians (excluding anesthesiology, pathology, and radiology) classified by the American Medical Association (AMA) or the American Osteopathic Association (AOA) as providing office-based patient care at a point approximately 6 months before the start of the survey year. It uses robust multistage probability sampling with the first stage sample, including counties, groups of counties, county equivalents, or towns and townships within the United States and the District of Columbia as the primary sampling units (PSUs). In the second stage, a probability sample of practicing physicians from the AMA and AOA master files are selected. In the final stage, patient visits to the selected sample of physicians are selected.

Each observation in the dataset represents a physician-patient encounter/visit. The physician aided by his/her office staff conducted the data collection. The NAMCS protocol instructs each physician's office to record the primary diagnosis and 2 other secondary conditions related to the primary diagnosis. The NAMCS also collects data on patient demographics, services provided during the visit, chief complaint for the visit, and region of physician office.

For this study, to assess recent overall and physician specialty trends in antihypertensive drug therapy, NAMCS survey years over a 10-year period from 2000 to 2009 were evaluated.¹⁴ To exclude strokes with very unusual causes that are almost always seen in individuals less than the age of 40 years, we selected all adults aged 40 years with a diagnosis of stroke (430.xxx-438.xxx) using valid International Classification of Diseases, 9th edition, Clinical Modification (ICD-9-CM) codes.¹⁵⁻¹⁷ Up to three diagnoses were recorded for each visit. Up to six medications were recorded for each visit from 2000 to 2002. Starting in 2003, up to eight medications were recorded. To make years comparable in the present analysis, we limited the maximum number of medications to the first six listed in all years. These medications were used to identify visits including an antihypertensive drug. On the NAMCS data collection forms, physicians could record the antihypertensive drugs prescribed during the visit by using either generic drug names or brand names. Where brand

names were listed, each generic name (active ingredient) component of the drug product was coded separately.

To examine patterns across years, the sample was grouped in years of three or four (2000-2002, 2003-2005, 2006-2009). To examine co-existing diagnosis we used ICD-9-CM; Hypertension (401.xxx), Myocardial infarction (410.xxx), Diabetes (250.xxx), Congestive heart failure (428.xxx) and Chronic kidney disease (585.xxx). Blood pressure was first collected in 2003 therefore years 2000-2002 were excluded from this part of the analysis. In additional analyses, we set out to compare antihypertensive drug treatment patterns between primary care physicians (PCPs) and neurologists, the latter group being the physician specialists recognized to have expertise in the acute and chronic management of patients with stroke. Thus visits were additionally characterized as follows - Visits where the physician marked physician specialty as "Neurology"; Primary care physicians (PCP): Visits where the physician indicated that they were the primary care physician and/or marked physician specialty as "General and family practice " or "Internal medicine". Of note, there were a few records with a physician indicating that they were the primary care physician and specialty as "Neurology"; these were classified as "Neurologists". Finally, we set out to compare antihypertensive prescription patterns by class and number (one vs. two or more) of agents prescribed across time and between physician type.

Statistics

The data were analyzed by overall study population demographics, study period (2000-2002, 2003-2005, 2006-2009), and physician type (primary care physician vs. neurologist). Descriptive statistics were computed as frequency tables (row, column percentages) and statistical comparisons performed using chi-square tests. To examine antihypertensive drug prescription (yes/no) trends for stroke patients over the study period (2000-2002, 2003-2005, 2006-2009), unadjusted analysis using chi-square test were performed. Wherever the overall test was found to be statistically significant, pair-wise chi-square tests were performed reporting Holm's adjusted p-values. We did not report any pairwise p-values, only the overall p-value. Furthermore, a logistic regression model adjusting for age (since age correlates very strongly with presence and degree of high blood pressure, as well presence of major vascular disease entities) was fit. To examine antihypertensive drug prescription (yes/no) patterns for stroke patients between primary care physicians and neurologists, unadjusted analysis using chi-square test were performed, then a logistic regression model adjusted for age was fit. To examine level of blood pressure for stroke patients across years (2003-2005, 2006-2009), the cutoff values listed below were used:

- systolic blood pressure <140 mm Hg
- diastolic blood pressure <90 mm Hg
- systolic blood pressure <120 mm Hg
- diastolic blood pressure <80 mm Hg

An unadjusted analysis using chi-square test was performed, and a logistic regression model adjusted for age was fit. Finally, to examine level of blood pressure for stroke patients between primary care physicians and neurologists, unadjusted analysis using chi-square test

were performed, and subsequently, a logistic regression model adjusted for age was fit. Finally, unadjusted analyses for examining the relationship between class and number of antihypertensive agents versus 1) time period and 2) physician type among antihypertensive visits were performed using chi-square analyses. Additional analyses adjusted for age were performed using logistic regression. A sensitivity analyses in the latest time period with the most years (2006-2009) was conducted to see if time trends and physician specialty trends within this epoch were in accord with the overall trends across the decade. The determination of statistical significance was based on a 0.05 level of significance. All analyses were adjusted for the NAMCS complex survey design, including weights, clustering and stratification.

Ethics

Since this was an analysis of a publicly available de-identified administrative online database, formal review by the Institutional Review Board at our respective institutions was not required.

RESULTS

There were 18,197,254 weighted visits with stroke and antihypertensive treatment over the 9 year study period. Table 1 shows the descriptive data by time period studied over the decade. Several of the descriptive characteristics were fairly comparable across the time periods. However, the most notable difference across periods was for number of overall medications (of any type) listed, for which it was observed that there was a substantial increase in the number of drugs in 2006-2009 compared to 2000-2002 (6 drugs: 37.2 vs. 19.0%). Patients seen by PCPs were significantly more likely to be older, non-White, encountered in the Midwest/West, administered preventive care, been to the practice before, educated about diet/nutrition or exercise, prescribed multiple drugs, diabetic, and hypertensive (all $p < 0.05$). Unadjusted data in table 2 show that antihypertensive drug prescription rates were significantly higher in 2006-2009 (49.3%) vs. 2000-2002 (35.6%) and 2003-2005 (29.5%), and significantly more so among PCPs (50.9%) compared to neurologists (26.2%). Age-adjusted logistic regression analyses (table 3) showed that antihypertensive drugs were prescribed more frequently in 2006-2009 compared to 2000-2002 (OR 1.81, 95% CI: 1.10-2.96, $p = 0.0188$); likewise antihypertensive drugs were prescribed more frequently for PCP visits compared to neurology visits (OR 2.82, 95% CI: 1.86-4.27, $P < 0.0001$).

Unadjusted analyses of antihypertensive drug prescription rates by agent class and number of agent classes (supplementary table 1) showed generally similar rates by time period except for the use of thiazide diuretics which were significantly higher in 2006-2009 (19.0%) vs. 2000-2002 (12.4%), and the use of two or more agent classes in 2006-2009 (56.7%) vs. 2000-2002 (31.6%). There were no significant differences in antihypertensive drug prescription rates by agent class or number of agent classes between neurologists vs. PCPs. Age-adjusted logistic regression (table 4) only confirmed a higher use of two or more agent classes in 2006-2009 compared to 2000-2002 (OR 2.96, 95% CI 1.40-6.24, $p = 0.0044$),

and consistent with the unadjusted analyses revealed no significant differences by provider type (table 5).

Results of additional analyses examining blood pressure levels in 2003-2005 vs. 2006-2009 showed no significant differences in the blood pressure levels measured during the visit by time period or physician type (supplementary table 2). Sensitivity analyses that explored time trends and physician specialty trends within just the time period of 2006-2009 show that there was no significant difference in antihypertensive drugs prescription rates across the 5 year period, but similar to the overall 2000-2009 analysis, PCPs still had a significantly higher antihypertensive drug prescription rate than neurologists (supplementary table 3).

DISCUSSION

In this analysis of an administrative dataset comprising a sample of practice patterns among physicians based in the United States, it was observed that over the last decade, for visits by patients aged ≥ 40 years with a diagnosis of stroke there was a significant rise in use of antihypertensive drugs from approximately one-third to one-half. This temporal increase could have been due to progressive diffusion of clinical trial evidence and expert consensus guidelines on the use of antihypertensive drugs for recurrent stroke prevention into routine practice within ambulatory settings. However, we also noted that the number of medications of any type being prescribed in ambulatory setting significantly rose over the decade as well, so it could well be that the rise in antihypertensive drug prescriptions simply reflected secular trends. In support of this latter notion was the finding in the sensitivity analysis of a lack of increase in antihypertensive medications over the most recent 4 years in our study period. Still, it must be pointed out that the analysis of antihypertensive drug use among patients encountered across 2006 to 2009 may also have been limited by a lack of adequate statistical power. Even if one were to accept these data as reflecting at least in part evidence-practice diffusion, it would seem that there remains room for improvement in ensuring that virtually all known stroke patients without contraindications receive antihypertensive agents.

We also observed that visits by patients with a diagnosis of stroke to the neurologist were significantly less likely to prescription of antihypertensive drugs, compared to visits to the primary care physician. This result persisted after adjusting age, and was similarly noted in sensitivity analysis of pre-specified time period. Although, patients who visited PCPs were older and had more co-morbid conditions, it would still be expected that based on clinical trial evidence, the overwhelming majority of stroke patients aged ≥ 40 years would benefit from being on an antihypertensive drug. When office blood pressure values were examined no significant differences were observed between PCP encounters and neurologist encounters suggesting that either blood pressure level during was not the main driver of the higher antihypertensive drug use seen among PCPs or patient blood pressure levels were higher in the PCP group thereby stimulating a higher treatment rate. While several studies have reported that neurologist's management, compared with generalist's management, is associated with improved patient outcomes among hospitalized stroke patients,¹⁸⁻²² and there are data on the influence of recent clinical trials on inpatient treatment rates,²³ few comparisons have been conducted in the ambulatory care setting.²⁴ Patients and neurologists

seem to generally perceive that neurologic outpatient involvement adds value to care,²⁵ but more objective data to support this notion are lacking.

It must also be noted that other strategies for mitigating future stroke risk like diet/nutrition education and counseling on exercise occurred more frequently during PCP visits. Again, it was apparent that patients seen by the PCPs had more comorbidities than those seen by neurologists by expert consensus guidelines mainly written academic neurologists advocate lifestyle modification counseling for patients with a diagnosis of stroke. Overall, the present data are in accord with results of a nationwide survey of neurologists in the United States that revealed that a majority of practicing neurologists defers traditional stroke risk factor control to primary care physicians.²⁶ It is not immediately clear why neurologists may prefer to have PCPs manage these risk factors, and this retrospective analysis cannot shed more light on the reasons for this disparity in care. However, it is not inconceivable that neurologists who undergo only one year of general medicine training may feel less comfortable than PCPs in selecting, titrating, and monitoring antihypertensive drugs with their several classes, combinations, and potential systemic side effects.

The use of combinations of antihypertensive drug classes also rose significantly over the decade without any differences between PCPs and neurologists. This pattern may reflect greater acceptance among clinicians of the need to use combinations agents for more effective blood pressure control and minimization of side effects, and may be seen as a welcome trend.

This study has limitations. First, the survey data were not collected on a patient level therefore no patient level analysis could be performed. Second, there were slight differences in data collection across years (2000-2005 vs. 2006-2009), due to a change in overall classification being used to code drugs reported in NAMCS, which may result in a bias. However, we focused only on generic drug classifications, which would be expected to be consistent across years, and when we conducted a sensitivity analysis by examining individual years within the later epoch 2006-2009 we still found the same significant difference in antihypertensive drug visits between primary care physicians and neurologists. Third, NAMCS data are dependent on complete, accurate entry of clinical information by physicians, clinic staff, hospital staff, and Census Bureau representatives; and diagnoses in the NAMCS are based on the independent judgment of the prescribing physician rather than on research diagnostic interviews. Finally, no information was available in the NAMCS dataset regarding dosages, duration, and contraindications of medications.

Stroke is highly preventable and there is widespread agreement that the greatest single strategy for reducing the risk of recurrent stroke lies in blood pressure reduction via the use of antihypertensive therapy. Antihypertensive drug prescriptions for patient with a diagnosis of stroke are up, but there may be room for further improvement. In particular, neurologists might need to play a greater role when it comes to the use of antihypertensive drugs for their patients with a history of stroke. Future work should endeavor to pinpoint the reasons for this variation in physician practice patterns among patients with a history of stroke encountered in the ambulatory setting, and develop strategies to overcome it.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Descriptive Summary by Time Period among Patients with Stroke in the National Ambulatory Medical Care Survey, 2000 to 2009

Variable	Description	Years 2000-2002		Years 2003-2005		Years 2006-2009	
		<i>Weighted number of visits (11,166,668)</i>		<i>Weighted number of visits (15,672,790)</i>		<i>Weighted number of visits (19,477,811)</i>	
		Proportion	Standard error	Proportion	Standard error	Proportion	Standard error
Age							
	40-64 years	27.7%	3.5%	25.7%	3.3%	34.4%	2.4%
	65-74 years	32.1%	3.6%	25.5%	2.6%	25.5%	2.0%
	>= 75 years	40.2%	3.7%	48.7%	3.4%	40.1%	2.4%
Sex							
	Female	52.7%	3.9%	47.5%	3.2%	53.5%	2.7%
	Male	47.3%	3.9%	52.5%	3.2%	46.5%	2.7%
Race							
	White	84.0%	3.4%	85.2%	2.8%	87.2%	2.0%
	Black	10.4%	2.6%	10.9%	2.3%	9.8%	1.8%
	Other	5.6%	2.3%	3.8%	1.8%	3.0%	0.8%
Region							
	North East	18.0%	4.7%	15.6%	3.5%	14.8%	2.8%
	Mid West	23.2%	4.5%	18.8%	4.5%	25.3%	4.3%
	South	33.2%	5.4%	46.9%	7.0%	44.9%	5.1%
	West	25.6%	5.0%	18.7%	4.1%	15.0%	3.5%
Major reason for visit							
	Acute/new problem	29.8%	4.1%	28.7%	3.0%	31.1%	2.4%
	Chronic problem/routine	51.5%	4.9%	52.8%	3.6%	48.3%	3.2%
	Chronic problem/flare up	5.6%	1.7%	7.7%	1.6%	6.3%	1.2%
	Pre or post surgery, injury follow up	3.6%	1.4%	7.6%	3.4%	3.6%	1.0%
	Preventive/non-illness care	9.6%	2.6%	3.2%	1.1%	10.6%	2.2%
Patient seen before?							
	yes	89.8%	2.3%	87.5%	2.2%	87.8%	1.5%
	no	10.2%	2.3%	12.5%	2.2%	12.2%	1.5%
Solo Practice							
	yes	43.1%	5.0%	43.7%	6.2%	32.8%	2.9%
	no	56.9%	5.0%	56.3%	6.2%	67.2%	2.9%

Variable	Description	Years 2000-2002		Years 2003-2005		Years 2006-2009	
		<i>Weighted number of visits (11,166,668)</i>		<i>Weighted number of visits (15,672,790)</i>		<i>Weighted number of visits (19,477,811)</i>	
Diet education	no	83.6%	3.5%	84.1%	3.1%	84.0%	2.5%
	yes	16.4%	3.5%	15.9%	3.1%	16.0%	2.5%
Exercise education	no	87.8%	2.7%	86.4%	2.6%	85.3%	2.5%
	yes	12.2%	2.7%	13.6%	2.6%	14.7%	2.5%
Number of medications	0-2	57.2%	4.2%	57.8%	4.9%	38.2%	2.9%
	3-5	23.8%	4.0%	21.5%	3.4%	24.6%	2.3%
	>=6	19.0%	3.7%	20.7%	3.4%	37.2%	2.6%

Table 2

Unadjusted antihypertensive drug prescription rates by time period and provider type, NAMCS 2000-2009

Analysis	Variable	No Prescription Percent (Standard Error)	Yes Prescription Percent (Standard Error)	p-value
#1: By time				
	2000-2002	64.4 (4.9)	35.6 (4.9)	0.0022
	2003-2005	70.5 (3.9)	29.5 (3.9)	
	2006-2009	50.7 (3.1)	49.3 (3.1)	
#2: By Provider				
	Neurologist	73.8 (3.1)	26.2 (3.1)	<0.0001
	Primary care provider	49.1 (2.9)	50.9 (2.9)	

Table 3

Age-adjusted logistic regression analyses of antihypertensive drug prescription rates by time period and physician type, NAMCS 2000-2009

Analysis	Variable	Odds Ratio	Lower 95% Confidence Limit	Upper 95% Confidence Limit	p-value
#1: By time					
	2000-2002	Reference	---	---	---
	2003-2005	0.75	0.45	1.25	0.2685
	2006-2009	1.81	1.10	2.96	0.0188
	Age	1.01	1.00	1.03	0.0453
#2: By Provider					
	Neurologist	Reference	Reference	---	---
	Primary care provider	2.82	1.86	4.27	<0.0001
	Age	1.01	0.99	1.02	0.3002

Table 4

Age-adjusted logistic regression analyses of antihypertensive drug class prescription rates by time period, NAMCS 2000-2009

Agent Class	Variable	Odds Ratio	Lower 95% Confidence Limit	Upper 95% Confidence Limit	p-value
Angiotensin II receptor blockers	2000-2002	Reference	---	---	---
	2003-2005	1.18	0.34	4.08	0.7936
	2006-2009	2.44	0.85	7.06	0.0988
	Age	0.99	0.97	1.01	0.4175
ACE Inhibitors	2000-2002	Reference	---	---	---
	2003-2005	1.74	0.89	3.40	0.1028
	2006-2009	1.74	0.90	3.37	0.0995
	Age	0.99	0.98	1.01	0.5518
Beta blockers	2000-2002	Reference	---	---	---
	2003-2005	1.36	0.62	2.98	0.4449
	2006-2009	1.52	0.73	3.15	0.2600
	Age	1.00	0.98	1.01	0.6920
Calcium channel blockers	2000-2002	Reference	---	---	---
	2003-2005	0.80	0.33	1.97	0.6333
	2006-2009	0.72	0.33	1.55	0.3983
	Age	1.01	0.99	1.03	0.4746
Non-thiazide diuretics	2000-2002	Reference	---	---	---
	2003-2005	1.66	0.69	4.01	0.2557
	2006-2009	1.43	0.69	2.94	0.3331
	Age	1.07	1.03	1.11	0.0002
Thiazide diuretics	2000-2002	Reference	---	---	---
	2003-2005	0.41	0.13	1.34	0.1406
	2006-2009	1.64	0.59	4.53	0.3431
	Age	1.00	0.97	1.03	0.8606
Miscellaneous	2000-2002	Reference	---	---	---
	2003-2005	1.51	0.24	9.44	0.6590
	2006-2009	1.08	0.28	4.11	0.9111
	Age	0.99	0.93	1.06	0.7531

Agent Class	Variable	Odds Ratio	Lower 95% Confidence Limit	Upper 95% Confidence Limit	p-value
Two or more classes (vs. one class)					
	2000-2002	Reference	---	---	---
	2003-2005	1.69	0.74	3.86	0.2114
	2006-2009	2.96	1.40	6.24	0.0044
	Age	1.01	1.00	1.03	0.1455

Table 5

Age-adjusted logistic regression analyses of antihypertensive drug class prescription rates by provider type, NAMCS 2000-2009

Agent Class	Variable	Odds Ratio	Lower 95% Confidence Limit	Upper 95% Confidence Limit	p-value
Angiotensin II receptor blockers	Neurologist	Reference	---	---	---
	Primary care provider	0.75	0.41	1.38	0.3563
	Age	0.98	0.96	1.00	0.1158
ACE Inhibitors	Neurologist	Reference	---	---	---
	Primary care provider	1.26	0.77	2.04	0.3560
	Age	0.99	0.97	1.01	0.4827
Beta blockers	Neurologist	Reference	---	---	---
	Primary care provider	1.30	0.79	2.14	0.2989
	Age	0.99	0.97	1.01	0.5065
Calcium channel blockers	Neurologist	Reference	---	---	---
	Primary care provider	0.97	0.55	1.71	0.9261
	Age	1.01	0.98	1.03	0.6248
Non-thiazide diuretics	Neurologist	Reference	---	---	---
	Primary care provider	0.59	0.35	1.01	0.0540
	Age	1.08	1.03	1.14	0.0030
Thiazide diuretics	Neurologist	Reference	---	---	---
	Primary care provider	0.98	0.56	1.71	0.9308
	Age	0.99	0.96	1.02	0.4316
Miscellaneous	Neurologist	Reference	---	---	---
	Primary care provider	0.80	0.22	2.93	0.7375
	Age	1.00	0.92	1.09	0.9944
Two or more classes (vs. one class)	Neurologist	Reference	---	---	---
	Primary care provider	1.17	0.71	1.94	0.5371
	Age	1.00	0.98	1.02	0.8944