from €1132 (lower bound) to €1199 (upper bound). The mean cost of atenolol per patient was €366. The mean costs of the cardiovascular events were respectively €1969 and €2261 for losartan and atenolol groups. Therefore, the total mean cost per patient ranged from €3101 to €3169 for the losartan group and was estimated €2627 for the atenolol group. CONCLUSION: The annual incremental cost for each patient treated with losartan ranged from €99 to €113. This additional cost is associated with a significant reduction in cardiovascular morbidity and mortality (especially stroke).

**ECONOMIC IMPACT OF UNCONTROLLED HYPERTENSION AMONG NSAID USERS**

Shaya FT¹, Mullins CD², Wong W³, Johnson W³, Saunders E⁴

¹University of Maryland School of Pharmacy, Baltimore, MD, USA; ²CareFirst BlueCross BlueShield, Baltimore, MD, USA; ³University of Maryland School of Medicine, Baltimore, MD, USA.

OBJECTIVE: To determine differences in costs in hypertensive, NSAID-treated patients whose hypertension is controlled or uncontrolled. METHODS: Claims data from Carefirst BCBS were used to compare the mean annualized total costs between groups. Patients were included if they had a medical claim for hypertension (ICD-9 of 401.xx-404.xx) between February 1, 1999 and July 31, 2001 and the first claim for an NSAID (index date) between August 1, 1999 and July 31, 2001. NSAID usage included non-specific NSAIDs and COX-2 specific inhibitors. Uncontrolled hypertension was defined as one of the following occurring within 6 weeks following the index date: 1) 1 hypertension related hospitalization, emergency room visit or outpatient visit or 2) a switch to or addition of another antihypertensive drug. All billed charges between the index date and end of the study period were used to calculate mean annualized health care costs. A logistic model was used to assess the determinants of hypertension control. RESULTS: A total of 9805 patients were included. The difference in unadjusted annualized mean total cost for controlled ($6774; N = 7282) and uncontrolled patients ($9342; N = 2523) was $2568 (p < 0.0001). Mean annualized costs were $4856 (pre-index) and $4732 (post-index) for the controlled group and $5038 (pre-index) and $5394 (post-index) for the uncontrolled group (significant at p < 0.001). Differences were consistently greater for hypertension related than non-hypertension related costs. Patients were 1%, and 28% less likely to be controlled, per year of increase in age or they had diabetes, respectively. CONCLUSION: Patients using an NSAID, with uncontrolled hypertension incur incremental medical costs of approximately $2500 annually when compared to those with controlled hypertension. Older or diabetic patients are more likely to have uncontrolled hypertension. Further research is recommended at the drug level, to determine if particular NSAIDS, including COX-2 specific inhibitors, are associated with a greater likelihood of uncontrolled hypertension and if differences in total treatment costs exist by drug.

**EXCESS COSTS FOR SINGLE AGENT MEDICATION TREATMENT OF HYPERTENSION: 1999 DATA FROM THE NEW YORK STATE MEDICAID CLAIMS DATABASE**

Cosler LE, Hamilton RA, Clause S

Albany College of Pharmacy, Albany, NY, USA

OBJECTIVES: The Joint National Committee for the Prevention, Detection and Treatment of High Blood Pressure (JNC-VI) has published guidelines recommending thiazide diuretics (TZDs) or beta-blockers for the initial medication management of hypertension. Recent studies have corroborated these guidelines by demonstrating no difference in morbidity and mortality between chlorthalidone, amlodapine, and lisinopril in the treatment of hypertension. Thus, selection between these agents represents an issue of cost with similar outcomes. Hamilton and Clause have reported the prevalence of these agents for the treatment of hypertension in a sample of NYS Medicaid recipients, and observed variances from treatment guidelines. Using their results and the NYS Medicaid prescription database, differences in costs for single-agent treatments were assessed. METHODS: Prescription utilization data were abstracted from the NYS Medicaid claims database for a sample of 2689 beneficiaries with hypertension in 1999. Three groups were identified: a) 267 receiving only a TZD; b) 964 receiving only a calcium antagonist (CA); and c) 941 receiving either an ACEI or an ARB. Medicaid costs and days supply were queried for the following drug classes: a) ACEI; b) ARB; c) CA; and d) TZDs. Average cost-per-day were calculated for each category. Results were then adjusted for previously observed variances from treatment guidelines. RESULTS: Cost/day for each group were as follows: a) $0.18/day for TZDs; b) $1.58/day for CA; and c) $1.18/day for ACEI or ARBs. Compared to TZD, the excess costs for inappropriate CA therapy were estimated at $1.40/day or $511 per patient per year. Total potential patients benefiting from appropriate therapy were estimated from national trends. With 328,578 hypertensive NYS Medicaid patients, inappropriate therapies could account for more than $4.2 million in excess expenditures. CONCLUSION: There is potential for significant annual savings to NYS Medicaid through improved application of JNC-VI guidelines to the initial treatment of hypertension.