

Appropriate Use of Angiotensin Receptor Blockers

Angiotensin receptor blockers (ARBs) and angiotensin converting enzyme inhibitors (ACEIs) are used in the treatment of hypertension, heart failure, coronary heart disease, diabetic nephropathy, and secondary stroke prevention. ARBs are often preferred by prescribers as first-line agents over other therapies, including ACEIs, due to their ease of use, safety, tolerability, and the availability of samples. However, **ARBs have not been shown to be superior to ACEIs in randomized controlled trials and their costs are, on average, 4-5 times that of generic ACEI therapy.** None of the ARBs are available generically; a generic losartan is expected by the year 2010.

Currently, these drugs are heavily sampled and promoted by drug manufacturers which often translates into increased overall costs and the potential for over-utilization as well as inappropriate use. Although ARBs are effective treatment options for their labeled indications and are attractive from a tolerability standpoint, according to guidelines published by the American College of Cardiology (ACC), American Heart Association (AHA), American Diabetes Association (ADA) and the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7), **the use of ARBs is best reserved for select patient populations**, including individuals who are intolerant to or who have failed other therapies.

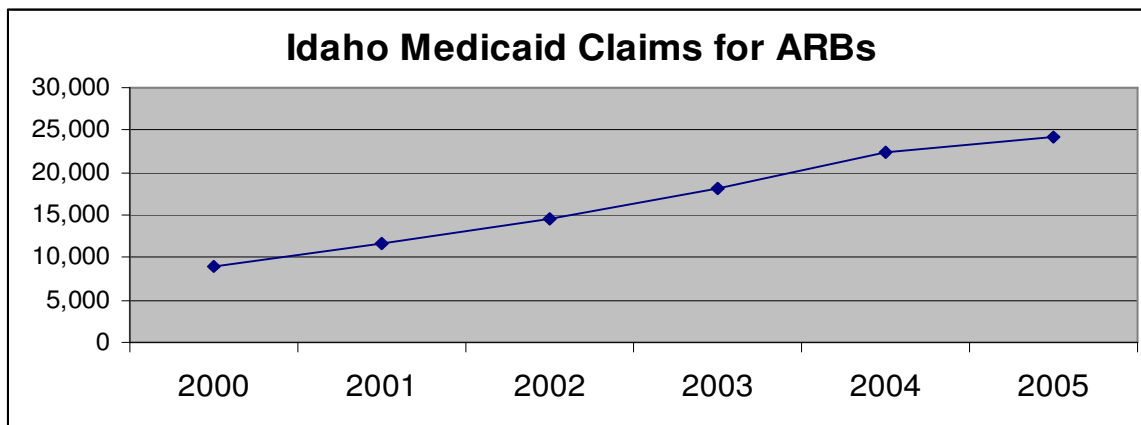
Guideline Recommendations

- The JNC 7 guidelines consider both ACEIs and ARBs effective treatment options for decreasing the rate of complications in patients with hypertension. Heart failure, diabetes and chronic kidney disease are compelling indications for use of an ACEI or an ARB.ⁱ
- Both ACEIs and ARBs have been shown to delay the progression of nephropathy in hypertensive patients with diabetes. ACEIs are considered first-line therapy; ARBs are recommended in patients intolerant to ACEIs or who have *macroalbuminuria*.^{ii,iii}
- ACEIs are still considered first-line therapy for patients with chronic heart failure; ARBs with demonstrated morbidity and mortality benefit (valsartan and candesartan) are reasonable alternatives for patients unable to tolerate ACEIs due to cough.^{iv}
- Current ACC/AHA guidelines for the management of patients with ST-elevation MI recommend patients be initiated and maintained long-term on ACEI therapy following acute myocardial infarction. ARBs may be used in patients intolerant to ACEIs.^v
- Combination ACEI and ARB therapy is not routinely recommended but is appropriate in select patients with heart failure or proteinuric renal disease.^{iii,iv,vi,vii,viii}

Idaho Medicaid Data

In 2006, over 500 patients were regularly taking an ARB, of which 58% had neither a compelling indication nor a previous trial of an ACEI. This accounted for nearly \$200,000 spent by Idaho Medicaid on potentially inappropriate utilization of ARBs in one year. Since the year 2000, the number of prescription claims for the ARB drug class has tripled (see next page).

*Idaho Drug Utilization Review Program
Educational Leaflet for Physicians, Pharmacists, and other Healthcare Practitioners*



Cost Comparison

ACEIs	Cost [†]	ARBs	Cost [†]
Enalapril (Vasotec®)*☺	\$10.99-16.99	Irbesartan (Avapro®)*	\$49.48-69.99
Lisinopril (Zestril®, Prinivil®)*☺	\$12.99-24.99	Telmisartan (Micardis®)*	\$50.32-58.70
Captopril (Capoten®)*☺	\$12.99-25.97	Valsartan (Diovan®)*	\$51.59-83.38
Quinapril (Accupril®)☺	\$21.99-21.99	Olmesartan (Benicar®)*	\$52.70-60.94
Benazepril (Lotensin®)*☺	\$23.99-23.99	Candesartan (Atacand®)	\$53.29-65.99
Fosinopril (Monopril®)☺	\$29.99-30.99	Losartan (Cozaar®)*	\$58.42-79.41
Ramipril (Altace®)*	\$38.47-63.99	Eprosartan (Teveten®)	\$64.18-78.45
Trandolapril (Mavik®)	\$38.68-39.99		
Moexipril (Univasc®)☺	\$40.79-46.16		
Perindopril (Aceon®)*	\$42.50-63.00		

[†]Cost range of available strengths based on 30-day supply at www.drugstore.com. Accessed May 2007.

*Medicaid preferred agent

☺Generic available

ⁱ Chobanian AV, Bakris GL, Black HR, et al. Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension* 2003;42:1206-52.

ⁱⁱ American Diabetes Association Position Statement. Standards of Medical Care in Diabetes--2006. *Diabetes Care* 2006;29(suppl 1):S4-43.

ⁱⁱⁱ National Kidney Foundation. K/DOQI clinical practice guidelines on hypertension and antihypertensive agents in chronic kidney disease. *Am J Kidney Dis* 2004 May;43:S33-S64.

^{iv} Hunt SA, Abraham WT, Chin MH, et al. ACC/AHA 2005 guideline update for the diagnosis and management of chronic heart failure in the adult: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Update the 2001 Guidelines for the Evaluation and Management of Heart Failure). *J Am Coll Cardiol* 2005;20:e1-82.

^v Antman EM, Anbe DT, Armstrong PW, et al. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction-executive summary. *Circulation* 2004;110:588-636.

^{vi} Nakao N, Yoshimura A, Morita H, et al. Combination treatment of angiotensin-II receptor blocker and angiotensin-converting-enzyme inhibitor in non-diabetic renal disease (COOPERATE): A randomized controlled trial. *Lancet* 2003;361:117-24.

^{vii} Mogensen CE, Neldam S, Tikkanen I, et al. Randomised controlled trial of dual blockade of renin-angiotensin system in patients with hypertension, microalbuminuria, and non-insulin dependent diabetes: the candesartan and lisinopril microalbuminuria (CALM) study. *BMJ* 2000;321:1440-44.

^{viii} McMurray JJ, Ostergren J, Swedberg K, et al. Effects of candesartan in patients with chronic heart failure and reduced left-ventricular systolic function taking angiotensin-converting-enzyme inhibitors: the CHARM-Added trial. *Lancet* 2003;362:767-71.