

ACE Inhibitors and Mortality in Elderly Patients with Heart Failure

Havranek EP, Abrams F, Stevens E, Parker K. Determinants of mortality in elderly patients with heart failure: the role of angiotensin-converting enzyme inhibitors. *Arch Intern Med* 1998;158:2024-8.

Study Overview

Objective. To understand the reasons for failure to prescribe angiotensin-converting enzyme (ACE) inhibitors to elderly patients with heart failure and to examine the effect of this underuse on mortality.

Design. Retrospective chart review, coupled with analysis of Medicare data from the Health Care Financing Administration.

Setting and participants. Elderly Medicare patients with a diagnosis of heart failure during 1994 discharged from any of seven Colorado hospitals selected by stratified sampling in order to include facilities of varying bed size, geographic location, and teaching status.

Main outcome measures. Mortality at 1 year after discharge.

Main results. 1016 patients with a diagnosis of heart failure and no contraindications to ACE inhibitors were identified. Of these patients, 378 were receiving ACE inhibitors upon hospital admission. Left ventricular systolic function was assessed in 257 of the remaining 638 patients; 92 had diminished function and were deemed eligible for treatment with ACE inhibitors.

Of these 92 patients, 54% ($n = 50$) were discharged on a regimen of ACE inhibitors. The only statistically significant difference in baseline comorbidity or demographic variables between those prescribed and those not prescribed ACE inhibitors was older age in the latter group. Multivariate analysis indicated that younger age and cardiology consultation predict a higher rate of ACE inhibitor prescription ($P = 0.02$).

Life-table analysis showed that mortality at 1 year after discharge from the index hospitalization was higher in those patients not treated with ACE inhibitors than in those treated (36% versus 24%, $P = 0.03$). Multivariate analysis showed that higher mortality at 1 year was significantly associated with higher comorbidity (as measured by the Deyo index of comorbidity), nonprescription of an ACE inhibitor, site of treatment, and absence of a cardiology consultation ($P < 0.001$).

Conclusion

Havranek and colleagues concluded that the most apparent reason for underuse of ACE inhibitors is older age. This persistent underuse is associated with higher than expected mortality in eligible heart failure patients.

Commentary

Because this study was conducted in one state, involved relatively few patients, and relied on retrospective data not specifically collected with the needs of this project in mind, the generalizability of these findings is limited. However, the finding of potential age bias resulting in suboptimal use of a potentially beneficial pharmacotherapy has been reported by other researchers.

Applications for Clinical Practice

Heart failure affects 1 to 2 million Americans and has become the most common discharge diagnosis among elderly Medicare beneficiaries [1,2]. Guidelines supported by professional societies and health care leaders uniformly recommend that clinicians identify patients with left ventricular systolic dysfunction and use ACE inhibitors as appropriate [3,4]. This study is yet another reminder that actual medical practice is not in accord with nationally recognized guidelines, and that it is possible to enhance congestive heart failure-related survival by improving medical care at the hospital level.

References

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3. Konstam M, Dracup K, Baker DW, Bortorff MB, Brooks NH, Dacey RA, et al. Heart failure: evaluation and care of patients with left-ventricular systolic dysfunction. Clinical Practice Guideline No. 11. Agency for Health Care Policy and Research. Rockville (MD): U.S. Public Health Service; 1994.
4. Guidelines for the evaluation and management of heart failure. Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol* 1995;26:1376-98.