Higher Mortality at 1 Year for Nonadherent Post-MI Patients

Ho PM, Spertus JA, Masoudi FA, et al. Impact of medication therapy discontinuation on mortality after myocardial infarction. Arch Intern Med 2006;166:1842–7.

Study Overview

Objective. To identify patient and treatment factors associated with medication therapy nonadherence after hospitalization for acute myocardial infarction (MI) and to assess the impact of medication discontinuation 1 month after MI on 12-month mortality.

Design. Prospective cohort study.

Setting and participants. Patients with acute MI from 19 U.S. hospitals enrolled in the Prospective Registry Evaluating Myocardial Infarction: Event and Recovery (PREMIER) study between 1 January 2003 and 28 June 2004. Patients were eligible if they were aged ≥ 18 years, had biomarker evidence of myocardial necrosis during the initial 24 hours of admission, and had other clinical evidence of acute MI, such as prolonged (> 20 min) ischemic signs or electrocardiographic ST changes.

Main outcome measures. The primary outcome measures were use of aspirin, β-blockers, and statins at 1 month and 12-month mortality. Medication use was assessed by abstraction of hospital admission and discharge records and by telephone interview at 1, 6, and 12 months after discharge. Survival status was determined by Social Security records.

Main results. Of 1521 patients discharged on all 3 medications and who completed the 1-month interview, 184 discontinued use of all 3 medications, 56 discontinued use of 2 medications, and 272 discontinued use of 1 medication at 1 month. Multivariate analysis revealed that patients who did not graduate from high school were more likely to discontinue use of all medications (odds ratio [OR], 1.76 [95% confidence interval {CI}, 1.20–2.60]). Females were more likely to discontinue use of medication therapy with increasing age (OR, 1.77 [95% CI, 1.34–2.34]) compared with males (OR, 1.23 [95% CI, 1.02–1.47]). Patients who discontinued use of all medications at 1 month had lower 12-month survival compared with patients who continued using at least 1 medication (88.5% versus 97.7%; $P < 0.001$). In multivariate survival analysis, medication discontinuation was independently associated with higher mortality (hazard ratio, 3.81 [95% CI, 1.88–7.72]).

Conclusion. After hospitalization for acute MI, patients are likely to discontinue use of cardioprotective medications as early as 1 month after discharge. Patients who discontinue using their medications are at higher risk of death within 1 year.

Commentary

Although scientific advances in the treatment of acute MI have led to reductions in mortality in the inpatient setting [1], where doctors can better control medication adherence, the outpatient setting is more challenging because the patient ultimately controls the course of therapy. Discontinuation of cardioprotective medications is common after hospitalization for MI and is a potential area for intervention. The Global Registry of Acute Coronary Events (GRACE) showed medication discontinuation rates of 8% to 13% at 6 months for aspirin, β blockers, and statins [2]. This study by Ho et al adds to the growing literature on the potential adverse outcomes of discontinuing cardioprotective medications as well as demonstrates that discontinuation may be a problem as early as 1 month after discharge.

Although the study's findings are intriguing, there are limitations that should be noted. First, the study did not delve into reasons why patients discontinued cardioprotective medications. Patients have many reasons to stop taking medications, including adverse effects, physician orders, lack of education, and socioeconomic factors. Another limitation is that patients who discontinue cardioprotective medications may be more likely to discontinue other medications for other comorbid conditions. It would have been helpful to differentiate cause of death (especially cardiovascular etiology) rather than provide data only on all-cause mortality.

Overall, the study was well done and answers some questions about which patients discontinue using cardioprotective medications, when patients are most likely to discontinue medication therapy, and what effect medication discontinuation has on 1-year mortality after MI. However, questions remain as to why patients discontinue medications and potential interventions that would increase patient adherence with cardioprotective therapy.

Applications for Clinical Practice

Current quality measures for post-MI care are focused on

medications given at discharge; however, this study points out a major gap in quality of care at the transition from the inpatient setting to the outpatient setting. Quality interventions that target patient populations at high risk for medication discontinuation as well as the reasons behind medication discontinuation could be effective in reducing mortality after MI even further.

—Review by Robert L. Huang, MD

References

1. Rogers WJ, Canto JG, Lambrew CT, et al. Temporal trends in the treatment of over 1.5 million patients with myocardial infarction in the US from 1990 through 1999: the National Registry of Myocardial Infarction 1, 2, and 3. J Am Coll Cardiol 2000;36:2056–63.
2. Eagle KA, Kline-Rogers E, Goodman SG, et al. Adherence to evidence-based therapies after discharge for acute coronary syndromes: an ongoing prospective, observational study. Am J Med 2004;117:73–81.