2017-02-01

Guideline-Based Prescribing in Frail Elderly Patients

Jennifer Tjia
University of Massachusetts Medical School

Et al.

community-dwelling older men: a population-based study. *Int J Cardiol*. 2015;192:49-55.

39. Ko DT, Hebert PR, Coffey CS, et al. Adverse effects of β-blocker therapy for patients with heart failure: a quantitative overview of randomized trials. *Arch Intern Med*. 2004;164(13):1389-1394.

40. Barron AJ, Zaman N, Cole GD, Wensel R, Okonko DO, Francis DP. Systematic review of genuine versus spurious side-effects of β-blockers in heart failure using placebo control: recommendations for patient information. *Int J Cardiol*. 2013;168(4):3572-3579.

41. Bangalore S, Messerli FH, Cohen JD, et al; INVEST Investigators. Verapamil-sustained release-based treatment strategy is equivalent to atenolol-based treatment strategy at reducing cardiovascular events in patients with prior myocardial infarction: an International Verapamil SR-Trandolapril (INVEST) substudy. *Am Heart J*. 2008;156(2):241-247.

42. Kamiyama T, Muratani H, Kimura Y, Fukiyama K, Omae T. Divergent effects of β-blocker therapy on self-estimated and objectively scored activities of daily living. *Hypertens Res*. 1999;22(2):85-93.

43. Park H, Satoh H, Miki A, Urushihara H, Sawada Y. Medications associated with falls in older people: systematic review of publications from a recent 5-year period. *Eur J Clin Pharmacol*. 2015;71(12):1429-1440.

44. Foebel AD, Liperoti R, Gambassi G, et al. Prevalence and correlates of cardiovascular medication use among nursing home residents with ischemic heart disease: results from the SHELTER study. *J Am Med Dir Assoc*. 2014;15(6):410-415.

45. Fried TR, McGraw S, Agostini JV, Tinetti ME. Views of older persons with multiple morbidities on competing outcomes and clinical decision-making. *J Am Geriatr Soc*. 2008;56(10):1839-1844.

46. Fried TR, Tinetti M, Agostini J, Iannone L, Towle V. Health outcome prioritization to elicit preferences of older persons with multiple health conditions. *Patient Educ Couns*. 2011;83(2):278-282.

47. Centers for Medicare & Medicaid Services. *Nursing Home Data Compendium 2015 Edition*. https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/CertificationandComplianc/Downloads/nursinghomedatacompendium_508-2015.pdf. Published 2015. Accessed July 14, 2016.

48. Rathore SS, Mehta RH, Wang Y, Radford MJ, Krumholz HM. Effects of age on the quality of care provided to older patients with acute myocardial infarction. *Am J Med*. 2003;114(4):307-315.

Invited Commentary

LESS IS MORE

Guideline-Based Prescribing in Frail Elderly Patients

Jennifer Tjia, MD, MSCE; Kate Lapane, PhD

In this issue of *JAMA Internal Medicine,* Steinman and colleagues[1] report on their carefully designed observational study of the comparative benefits and harms of β-blocker use for acute myocardial infarction (AMI) in adults 85 years or older—a population for whom no evidence from randomized clinical trials exists. They found that, within 3 months of hospital discharge after AMI, 12.1% of their study population experienced functional decline, 25.3% were rehospitalized, and 14.1% died. Use of β-blockers decreased the odds of death regardless of functional status. This should be good news. Guideline-based medications for AMI have been underused in older adults. The study's confirmation of the survival benefit for frail elders will likely spur an increase in β-blocker prescribing for older adults with multiple comorbidities.

Related article page 254

However, this well-executed study reveals a more complex phenomenon. Use of β-blockers increased the risk for functional decline among the cognitively and functionally impaired. Steinman et al[1] report that, among elders with functional or cognitive impairment, the number needed to harm is similar to the number needed to treat to prevent 1 death. This journal's "Less is More" series and the American Board of Internal Medicine Foundation's Choosing Wisely campaign highlight the need to curtail the use of nonbeneficial and potentially harmful medications, tests, and treatments. Thus, these findings must give us pause.

Despite some individuals wanting to live forever, in reality, many older adults reach the point when quality of life is more important than extension of life. The study by Steinman et al[1] is important because the primary outcome was functional decline and not death or hospital readmission. The authors confirmed that the practice of avoiding prescription of β-blockers in frail and highly vulnerable elders with functional impairment is reasonable. Steinman et al[1] extend that knowledge 1 step further. They shed some light on where the tipping point is. In the nursing home population, this point appears to be at the level of moderate cognitive impairment (ie, having short-term memory loss and a moderately impaired ability for decision making or an inability to make their needs understood) or severe functional impairment (ie, extensive assistance or total dependence for most, if not all, activity of daily living needs, including dressing, personal hygiene, toileting, ambulation, transferring, bed mobility, and eating). The 2014 guidelines for the management of non-ST elevation acute coronary syndromes from the American Heart Association and the American College of Cardiology (AHA/ACC)[2] state that pharmacotherapy should be individualized for older adults, and management decisions should be patient centered and take patient preferences/goals, comorbidities, functional and cognitive status, and life expectancy into consideration. Although not specifically addressed in the comparable AHA/ACC guidelines for ST elevation myocardial infarction,[3] an informed discussion of expected benefits and harms is consistent with good prescribing practices and can help patients and families know what to expect. The study by Steinman et al[1] provides some information useful for such discussions. However, this study did not examine the adverse effects of β-blockers that are often important to patients, such as fatigue, depression, dizziness, and orthostasis. Regardless of the care setting, clinicians should have frank discussions about extending prescription of guideline-recommended medications for AMI to patients with severe functional limitations and moderate cognitive deficits because medication-induced harms may outweigh the benefit.

A more difficult question (not addressed by this study) is how long the β-blocker therapy should be continued after AMI. Com-

mon practice is to continue guideline-based post-AMI medication therapy for the rest of the patient's life. However, no clear evidence exists regarding the appropriate duration of treatment beyond 1 year in the absence of left ventricular dysfunction, angina, or dysrhythmia.[4] Given that the balance between benefit and harm of treatment accompanying an acute illness shifts in the course of a patient's life, clinicians must also consider how to discuss when to discontinue treatments with patients who may be experiencing declines in physical and cognitive functioning.

As clinicians, we must remember that the spectrum of good prescribing practices spans initiation to discontinuation of therapy.[5] Initiation of therapy, in many ways, is the easy part of the prescribing spectrum. Improving prescribing practice for patients late in life, including the oldest-old patients (≥85 years), those with serious illness and a limited prognosis because of multiple chronic medical conditions, and those with multiple functional impairments may be achieved by using a model that calls for appreciation of a patients' prognosis (remaining life expectancy), medication treatment target, time needed for medication to produce the intended benefit, and the patient's goals of care.[6]

The more challenging part is considering discontinuation of therapy. The barriers include uncertainty on the part of clinicians about the benefits of continuing treatment, uncertainty about the benefits and harms of discontinuing therapy, and the lack of protocols for how to taper therapy. Another major challenge is the timing of and the actual time required to engage in shared decision making with patients and their family. Clinicians generally lack training about how to have such conversations. Scott and colleagues[5] propose the following 5 essential steps required for decision making about deprescribing: (1) ascertain all drugs the patient is taking and the reasons for each one; (2) consider the overall risk for drug-induced harm in individual patients; (3) assess each drug regimen for its eligibility to be discontinued; (4) prioritize drug treatments for discontinuation; and (5) implement and monitor the drug discontinuation regimen. Although this framework is useful to practitioners who struggle with the process of stopping therapy, mastering the art of the conversation to address the beliefs, fears, and hopes of the patients and families, who may have been told that they need to take some of these medicines for the rest of their lives, takes practice.

Good prescribing is a balancing act that is as much an art as a science. The present study adds to the science part. However, despite its rigorous and careful execution, it remains level B quality of evidence, namely, moderate quality from a well-designed, nonrandomized, observational study. The reported findings are subject to the same limitations of selection bias and residual confounding that plague all observational studies. Specifically, removing the patients at highest risk for poor outcomes (ie, those who died or were rehospitalized within 14 days of hospital discharge) likely biased the findings toward a positive survival benefit of β-blockers. A randomized clinical trial for frail older adults with cognitive and functional impairment to examine guideline-recommended medications for AMI is needed to address biases inherent in observational studies. Furthermore, a trial for discontinuation of β-blocker therapy in the population of elders with life-limiting illness would be prudent given the changing benefits and risks of treatment across levels of cognitive and functional impairment. The Palliative Care Research Cooperative Group's discontinuation trial for statin therapy among adults with life-limiting illness[7] provides a useful model for such a study. Regardless of the state of the science, all clinicians should consider improving their approach to communication regarding initiating (and discontinuing) therapy for those in the last quarter of their life.

ARTICLE INFORMATION

Author Affiliations: Division of Epidemiology of Chronic Diseases and Vulnerable Populations, Department of Quantitative Health Sciences, University of Massachusetts Medical School, Worcester.

Corresponding Author: Jennifer Tjia, MD, MSCE, Division of Epidemiology of Chronic Diseases and Vulnerable Populations, Department of Quantitative Health Sciences, University of Massachusetts Medical School, The Albert Sherman Building, 368 Plantation St, Ste AS8-2068, Worcester, MA 01605 (jennifer.tjia@umassmed.edu).

Published Online: December 12, 2016. doi:10.1001/jamainternmed.2016.7714

Conflict of Interest Disclosures: Dr Tjia reports during the last 3 years receiving grant support from the National Institutes of Health (NIH), the Donaghue Foundation, the Arnold P. Gold Foundation, and the Cambia Health Foundation; receiving honoraria for serving on and reviewing grants for the Scientific Review Committee of the Donaghue Foundation; receiving honoraria and travel support for serving on the Geriatric Technical Expert Panel for CVS Omnicare; and consulting as a geriatrician for the CVS Caremark Pharmacy and Therapeutics committee, for which she reviews medications and clinical programs for CVS Caremark. Dr Lapane reports during the last 3 years receiving grant support from the NIH, the Centers for Disease Control and Prevention, and Cubist Pharmaceuticals. No other disclosures were reported.

Additional Contributions: Jane L. Givens, MD, MSCE, Division of Gerontology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts, reviewed an early draft of this manuscript.

REFERENCES

1. Steinman MA, Zullo AR, Lee Y, et al. Association of β-blockers with functional outcomes, death, and rehospitalization in older nursing home residents after acute myocardial infarction [published online December 12, 2016]. *JAMA Intern Med*. doi:10.1001/jamainternmed.2016.7701

2. Amsterdam EA, Wenger NK, Brindis RG, et al; American College of Cardiology; American Heart Association Task Force on Practice Guidelines; Society for Cardiovascular Angiography and Interventions; Society of Thoracic Surgeons; American Association for Clinical Chemistry. 2014 AHA/ACC guideline for the management of patients with non-ST-elevation acute coronary syndromes: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol*. 2014;64(24):e139-e228.

3. O'Gara PT, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines Developed. *J Am Coll Cardiol*. 2013;62(16):e147-e239.

4. Kezerashvili A, Marzo K, De Leon J. β Blocker use after acute myocardial infarction in the patient with normal systolic function: when is it "ok" to discontinue? *Curr Cardiol Rev*. 2012;8(1):77-84.

5. Scott IA, Hilmer SN, Reeve E, et al. Reducing inappropriate polypharmacy: the process of deprescribing. *JAMA Intern Med*. 2015;175(5):827-834.

6. Holmes HM, Hayley DC, Alexander GC, Sachs GA. Reconsidering medication appropriateness for patients late in life. *Arch Intern Med*. 2006;166(6):605-609.

7. Kutner JS, Blatchford PJ, Taylor DHJ Jr, et al. Safety and benefit of discontinuing statin therapy in the setting of advanced, life-limiting illness: a randomized clinical trial. *JAMA Intern Med*. 2015;175(5):691-700.