 Editorial

Prognosis of Heart Failure in the Elderly
Not an Affair of the Heart?

Douglas D. Schocken, MD

During the past several years, prognostic instruments have been developed for patients with heart failure (HF), predicting a number of clinical outcomes, including mortality and rehospitalization.\(^1\)\(^-\)\(^3\) Few similar instruments for short-term prognosis have appeared designed specifically for use in the elderly with HF. Pilotto et al\(^4\) have addressed this gap by creating a prognostic instrument that places new emphasis on a whole array of geriatric tools. The Multidimensional Prognostic Index (MPI) is derived from a comprehensive geriatric assessment (CGA). This new tool demonstrates powerful predictive capabilities for 30-day mortality in elderly patients, especially for men, hospitalized for HF, in comparison with more traditional prognostic tools such as the New York Heart Association class, or indices derived from ADHERE\(^2\) or the EFFECT measure.\(^3\)

Article see p 14

What is the real message here? Is there actually something new under the sun? Several major points deserve attention. How did the authors construct this new instrument? Are their observations in keeping with our general understanding of HF in the elderly population and its management? Was the instrument tested in a realistic setting? What is the potential utility of the new instrument? The construct of the new instrument departs from previous similar prognostic tools in one major way. It places particular attention on the patient’s comorbid conditions. Moreover, and with novel fashion, the MPI places high value on the CGA of the patient. This CGA comprises a group of eight scales, questionnaires, and indices selected to span the spectrum of independent function, cognitive capabilities, nutritional status, medications, social support, cumulative comorbid illnesses by system, and likelihood of developing pressure sores.

On the one hand, this focus on geriatric factors is a commendable step forward. However, the authors have combined the tools in a purely summative algebraic formula without weighting by importance or relevance in an individual’s particular presentation. For example, 4 of the 8 MPI components specifically draw on cognitive skills, memory, and motor tasks, whereas one solely addresses social interaction. Only 3 of the subscales include what would be called “traditional” medical variables, assessing comorbid illnesses enumerated by organ system scored by severity, a medication count, and a short nutritional assessment tool (Mini Nutritional Assessment). On the other hand, each component of the MPI is weighted equally in the formula. Even the most egalitarian among us would not weigh the impact of each component as to convey identical influence on the prognosis following HF admission. The number of variables carrying cognitive, motor skill, and social information dominates the formula, therefore, de jure, drives its outcome. The surprise (and it comes as no surprise to some) is that medical issues likely play less of a predictive role in the short-term outcome after these index admissions.

The next question is the practical one revolving around how this new instrument was tested. The authors articulately cite some study limitations. The study was performed on a geriatric unit of a general hospital. How many other patients with HF were admitted to other units? How were the diagnoses made? By what criteria? Could misclassification have occurred? Was there a process in place to adjudicate the diagnostic classification of the patients with HF?

The MPI was derived from the CGA, requiring administration by an “expert geriatrician” and demanding up to 25 minutes of additional evaluation time. Approximately 6% of screened subjects were excluded because they did not provide consent. Were those subjects sicker or frailer or simply not interested? The possible introduction of selection bias toward enrolling less sick individuals makes the authors’ conclusions even stronger.

Management of the patients is not described fully. Moreover, the use of conventional evidence-based therapies as advocated by either American Heart Association/American College of Cardiology\(^5\) and European Society of Cardiology\(^6\) does not seem to have been adopted by the practitioners whose patients formed the study cohort. Use of \(\beta\)-blockers and angiotensin-converting enzyme inhibitors appears particularly low, and use of angiotensin II receptor blockers, spironolactone and digoxin is not stated. Finally, the prevalence of implanted devices in this population (pacemakers, cardiac resynchronization therapy, or implantable cardiac defibrillators) is not addressed at all.

The high correlation for this sample between the MPI scores and those derived from previously developed risk scores for this sample is impressive. This close relationship between predominately geriatrics-based items (derived from CGA) and essentially clinical items (NYHA, ADHERE, and EFFECT scores) demonstrates striking commonality where few would have suspected it.

The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

From the Division of Cardiology, Duke University Medical Center, Duke University School of Medicine, Durham, NC.

Correspondence to Douglas D. Schocken, MD, Box 3022, Duke University Medical Center, Durham, NC 27710. E-mail douglas.schocken@duke.edu

(Circ Heart Fail. 2010;3:2-3.)

© 2010 American Heart Association, Inc.

Circ Heart Fail is available at http://circheartfailure.ahajournals.org
DOI: 10.1161/CIRCHEARTFAILURE.109.930057
The authors divided the patients into tertiles based on MPI score (lower third, middle third, and upper third) and noted distinct, graded, increased mortality risk with increasing tertile. Consideration of the MPI score as a continuous variable would have been helpful as well, though not as utilitarian as the convenience of prespecified cut points. ROC plots for MPI scores compared with other prognostic indices (NYHA, ADHERE, and EFFECT) provide one revealing observation about the robustness of the predictive power of the MPI as a continuous variable for short-term use, especially in men. A larger sample size might have produced a larger number of end points for women and might have also been confirmatory.

To no one’s surprise, the short-term mortality is independent of left ventricular ejection fraction. The results demonstrating higher short-term mortality in men than in women is consistent with the overall mortality trends in this age group. Higher scores on MPI carried a greater short-term mortality risk were more likely to be associated with increasing age and less likely to be found in patients with heart failure and preserved ejection fraction.

Some of the observations seem to vary from those described in the literature. In particular, the picture of heart failure with preserved ejection fraction in this study does not seem to resemble other previously described groups. The clinical features of heart failure and preserved ejection fraction in these previous studies characterize a syndrome more likely found in older women with a history of hypertension. To emphasize, however, this study examines a highly selected population (elderly, acutely hospitalized on geriatrics unit) not readily comparable with the community sample described from Framingham, Mass, or from the patients of Olmsted County, Minn.8

What is the practical utility of this new instrument? Of all the drawbacks to the MPI derived from this CGA, the number of instruments, time required to administer the CGA and reliance on “expert” geriatricians markedly restricts its utility. Widespread adoption will need to await simplification, abbreviation, and revalidation. Once these tasks have been accomplished, it seems that the group of patients identified at the greatest risk of 30-day mortality based on MPI tertile could then be directed to the most appropriate management.

More intensive intervention or hospice care might be selected depending on the individual situation. A method for weighting of the attributable risk according to MPI component would be very helpful in setting the direction of the clinical plans toward comfort care and compassionate end-of-life plans or more aggressive care to address or remediate possibly reversible comorbid or primary cardiac problems. I hope that the authors’ future plans lead them beyond enumeration toward a more weighted approach to their formula.

The fact that the CGA has greater short-term prognostic value than do disease-specific or organ system-oriented instruments appears unexpected to some. However, on closer examination, the MPI speaks volumes for the powerful impact of frailty, the loss of activities of daily living capabilities, diminishing cognitive skills and the process of global involutional catastrophe. The end of the road is a final common pathway when the extremely frail elderly meet acute decompensation of chronic systemic illness. With respect to the present investigation by Pilotto et al, heart failure is the disease of the day.

Can these new instruments be directly applied to community-dwelling outpatients? Likely not. What we have learned, however, is that in elderly patients hospitalized with HF, we have renewed reasons to look beyond the heart. For advancing a personalized care approach to the elderly, that is a good thing.

Disclosures

None.

References


Key Words: ageing ■ heart failure ■ prognosis
Prognosis of Heart Failure in the Elderly: Not an Affair of the Heart?
Douglas D. Schocken

Circ Heart Fail. 2010;3:2-3
doi: 10.1161/CIRCHEARTFAILURE.109.930057
Circulation: Heart Failure is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2010 American Heart Association, Inc. All rights reserved.
Print ISSN: 1941-3289. Online ISSN: 1941-3297

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circheartfailure.ahajournals.org/content/3/1/2

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation: Heart Failure can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation: Heart Failure is online at:
http://circheartfailure.ahajournals.org//subscriptions/