into consideration the possible confounding effect of potentially inadequate cardioprotective regimens given to these patients.

Robert M. Reed, MD
Steven Scharf, MD, PhD
Baltimore, MD

Affiliations: From the Division of Pulmonary and Critical Care Medicine, University of Maryland School of Medicine.

Financial/nonfinancial disclosures: The authors have reported to *CHEST* that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

Correspondence to: Robert M. Reed, MD, University of Maryland Physicians, Division of Pulmonary and Critical Care Medicine, 110 S Paca St, 2nd Floor, Baltimore, MD 21201; e-mail: rreed@medicine.umaryland.edu

© 2012 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians (<http://www.chestpubs.org/site/misc/reprints.xhtml>).

DOI: 10.1378/chest.11-2613

REFERENCES

1. Enriquez JR, Parikh SV, Selzer F, et al. Increased adverse events after percutaneous coronary intervention in patients with COPD: insights from the National Heart, Lung, and Blood Institute Dynamic Registry. *Chest*. 2011;140(3):604-610.
2. Reed RM, Iacono A, DeFilippis A, et al. Statin therapy is associated with decreased pulmonary vascular pressures in severe COPD. *COPD*. 2011;8(2):96-102.
3. Finkelstein J, Cha E, Scharf SM. Chronic obstructive pulmonary disease as an independent risk factor for cardiovascular morbidity. *Int J Chron Obstruct Pulmon Dis*. 2009;4:337-349.
4. Newman AB, Naydeck BL, Sutton-Tyrrell K, Feldman A, Edmundowicz D, Kuller LH. Coronary artery calcification in older adults to age 99: prevalence and risk factors. *Circulation*. 2001;104(22):2679-2684.
5. Kotlyar E, Keogh AM, Macdonald PS, Arnold RH, McCaffrey DJ, Glanville AR. Tolerability of carvedilol in patients with heart failure and concomitant chronic obstructive pulmonary disease or asthma. *J Heart Lung Transplant*. 2002;21(12):1290-1295.
6. Gold MR, Dec GW, Cocca-Spofford D, Thompson BT. Esmolol and ventilatory function in cardiac patients with COPD. *Chest*. 1991;100(5):1215-1218.
7. Reed RM, Iacono A, DeFilippis A, Eberlein M, Girgis RE, Jones S. Advanced chronic obstructive pulmonary disease is associated with high levels of high-density lipoprotein cholesterol. *J Heart Lung Transplant*. 2011;30(6):674-678.

Response

To the Editor:

We appreciate the comments from Drs Reed and Scharf regarding our recent article in *CHEST*.¹ In our analysis of >10,000 patients undergoing percutaneous coronary intervention in the National Heart, Lung, and Blood Institute's Dynamic Registry, we observed that patients with COPD were at higher risk of adverse events after percutaneous coronary intervention and less likely to receive aspirin, β -blockers, and statins at discharge, compared with those without COPD. We commend Reed and Scharf for reporting findings that also highlight the disparities in coronary artery disease therapy between those with and without COPD.²

Regarding the excess cardiovascular disease and worse outcomes among patients with COPD, we agree with Reed and Scharf that this is a complex issue with multiple potential mediators related to demographic and clinical characteristics, chronic hypoxic or systemic inflammatory processes,³ and treatment-related variables.¹ For such reasons, we attempted to elucidate the relative contribution of such variables to outcomes within our study through the creation of stratified multivariate models, in which we found that demographic, angiographic, and treatment-related variables all appear to contribute to mortality, although demographic variables appear to contribute more to other outcomes evaluated.¹ We concur that future studies of COPD and its association with adverse outcomes should also consider rigorous adjustment for potential confounding variables and should aim to identify factors contributing to the significant cardiovascular disease morbidity and mortality among these patients.

Questions posed by Reed and Scharf regarding physicians' reasons for withholding guideline-recommended coronary artery disease therapies, such as statins, are very relevant and certainly worthy of further study. We agree that the lower lipid levels among patients with COPD, compared with those without COPD, could be one explanation for the decreased use of statins. Additionally, providers may be less inclined to escalate cardiac therapies because of the perception of patient frailty or because of a perception that atypical symptoms may be due to respiratory rather than cardiac causes.⁴ Regardless of the reasons for differences in treatment, we believe the results of our study support a greater awareness that patients with COPD represent a high-risk group, requiring focused attention after coronary revascularization for the prevention and management of adverse events.

Jonathan R. Enriquez, MD
Elizabeth M. Holper, MD, MPH
Dallas, TX

Affiliations: From the University of Texas Southwestern Medical Center (Dr Enriquez); and Medical City Hospital (Dr Holper).

Financial/nonfinancial disclosures: The authors have reported to *CHEST* that no potential conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

Correspondence to: Elizabeth Holper, MD, MPH, Medical City Hospital, 7777 Forest Lane, Ste 339, Dallas, TX 75230; e-mail: eholper@gmail.com

© 2012 American College of Chest Physicians. Reproduction of this article is prohibited without written permission from the American College of Chest Physicians (<http://www.chestpubs.org/site/misc/reprints.xhtml>).

DOI: 10.1378/chest.11-2914

REFERENCES

1. Enriquez JR, Parikh SV, Selzer F, et al. Increased adverse events after percutaneous coronary intervention in patients with COPD: insights from the National Heart, Lung, and Blood Institute Dynamic Registry. *Chest*. 2011;140(3):604-610.
2. Reed RM, Iacono A, DeFilippis A, et al. Statin therapy is associated with decreased pulmonary vascular pressures in severe COPD. *COPD*. 2011;8(2):96-102.
3. Sin DD, Man SF. Why are patients with chronic obstructive pulmonary disease at increased risk of cardiovascular diseases? The potential role of systemic inflammation in chronic obstructive pulmonary disease. *Circulation*. 2003;107(11):1514-1519.
4. Hadi HA, Zubaid M, Al Mahmeed W, et al. Prevalence and prognosis of chronic obstructive pulmonary disease among 8167 Middle Eastern patients with acute coronary syndrome. *Clin Cardiol*. 2010;33(4):228-235.