To the Editor: Obstructive sleep apnea (OSA) is highly prevalent in the general population and has been associated with arrhythmias, hypertension, stroke, and heart failure (1). Identification of OSA in cardiovascular patients is especially important because untreated OSA may be accompanied by increased cardiovascular events, and this risk may be attenuated by treatment with continuous positive airway pressure (2). We sought to investigate how the rates of recognition and diagnosis of obstructive sleep apnea compare with the actual prevalence of OSA in patients after myocardial infarction (MI).

This study comprised 2 parts: a chart review of consecutive patients with acute MI, and a prospective evaluation of MI patients who were recruited to undergo polysomnography. These studies received institutional review board approval. First, we reviewed the medical records of 798 consecutive patients who were hospitalized with a diagnosis of acute MI between January and September 2007. Electronic records, including admission and discharge notes, were searched for diagnosed or suspected sleep-disordered breathing, and especially for mentions of OSA during the MI hospitalization. In the event of several hospital admissions for the same patient, only the first admission was used in our analysis. We further prospectively studied 74 patients who were hospitalized with acute MI between 2004 and 2008 and were recruited to undergo overnight polysomnography (PSG), which is the gold standard in the diagnosis of OSA (Compumedics Siesta Wireless Sleep Recorder, Oxford Instruments, Oxford, United Kingdom). All polysomnographies were performed within 6 weeks of the MI hospitalization and were scored by standard criteria (1). OSA was defined as present when the apnea hypopnea index was more than 5. The diagnosis of MI was based on standard guidelines and was made by the attending physicians, who were blinded to this study. Patients were approached during their MI hospitalization, and their participation was based on their consent and availability of the study personnel and equipment. There was no systematic selection for specific demographic or patient characteristics. A review of electronic and paper records of these patients also was performed in a similar fashion to that of the first part of our study.

Between January and September 2007, there were 798 patients admitted to our institution with the diagnosis of acute MI. The mean age of this cohort was 69 ± 14 years, and 512 (64%) were male. Diagnosed and suspected OSA was recorded in 97 (12%) patient records. The prospective cohort of 74 patients had a mean age of 62 ± 13 years, and 46 (78%) were male. On review of their hospital records, 10 (14%) had documentation of diagnosed or suspected OSA. All of these patients underwent overnight PSG. For this group, the mean apnea hypopnea index was 17 ± 18 events/h. OSA was present in 51 (69%) patients, and severe OSA (apnea hypopnea index >15) was present in 30 (41%) patients.

The main finding of this study was the low rate of documented or suspected OSA in patients hospitalized for acute MI, contrasting with the high prevalence of OSA in those in whom we conducted prospective PSG studies (3–5). This suggests a lack of awareness and recognition of OSA during treatment of acute MI. A high prevalence of OSA in the unselected general population has been well documented (1). Our results suggest that only 12% of patients hospitalized with acute MI had documentation of diagnosed or suspected OSA. When prospectively evaluated by overnight PSG, a subgroup of patients had a much higher actual prevalence of OSA (more than two thirds had at least mild OSA), but even in these patients with proven sleep apnea, the possibility of OSA was documented in only 14% of patients (Fig. 1).

There are several limitations to our study. First, documentation in the medical record does not necessarily reflect the entire scope of medical evaluation; it is possible that in some patients, OSA was suspected and they were verbally recommended to have an OSA evaluation that was not documented in the records, or this was left for a follow-up visit. Even so, it would be advantageous to arrange for screening for OSA during the hospitalization, just as we routinely initiate aspirin, beta-blocker, statin, and angiotensin-converting enzyme inhibitor therapy before patient discharge.

Cardiovascular disease patients with untreated severe OSA are thought to have worse cardiovascular outcomes (2,3), which may be improved with continuous positive airway pressure. Randomized controlled trials testing this assumption are lacking. Demonstrated beneficial effects of continuous positive airway pressure could lead to significant practice and guidelines changes. An absence...
The excellent review by Berger et al. (1) perfectly illustrates a problem with individual risk prediction, which is that different risk scores provide different risk estimates for the same patient. Table 2 of their paper (1) shows estimated risks ranging from 2% to 39% for a patient asking about her risk of a future cardiovascular event. Much of this discordance represents the different outcomes and different time periods used in the various cardiovascular risk scores. But even 10-year global cardiovascular risk ranges from 6% to 14%. This is a large discordance, and different preventive measures may be offered depending on the choice of a cardiovascular risk score.

When the U.S. Preventive Services Task Force published guidelines on aspirin for prevention of cardiovascular disease, correspondents raised the same point, suggesting the guidelines be reissued "with a specific risk-assessment tool that has been thoroughly studied to ensure the clinically appropriate application of these important guidelines" (2). The authors responded that development of a "gold-standard" cardiovascular disease risk calculator was a pressing priority (3). However, a recent review found many examples of the discordance of individual risk estimates and concluded that such discordance was unavoidable (4). The reason for this is that individuals do not have definite, pre-existing probabilities of a cardiovascular outcome that can be precisely estimated. In mathematical terms, the problem of risk stratification does not have a unique solution.

How do the authors manage such discordant individual risk estimates in the clinic?

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Letters to the Editor

Discordance of Individual Risk Estimates

The excellent review by Berger et al. (1) perfectly illustrates a problem with individual risk prediction, which is that different risk scores provide different risk estimates for the same patient.

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