CORRESPONDENCE

SpCO: Let’s Not Throw the Baby Out With the Bath Water—Reply

In reply:

We thank Dr McEvoy for his thoughtful reply to our report. He is correct that our definition of false positive was restrictive; however, we based this definition on the manufacturer’s stated accuracy specification, and, indeed, found that the RAD-57 functioned as specified. When broadened to include 2 standard deviations (95% of the data), the accuracy range would be ± 6%, a range that is challenging for the purpose of diagnosing CO poisoning.

We readily acknowledge that technician technique may play a role in obtaining accurate data, even though our technicians and study team were trained by the manufacturer on probe placement. Our concern is that, whether by technical limitations or operator error, the RAD-57 may provide an erroneously low $S_{\text{CO}}$ measurement in a patient with CO poisoning. We agree that $S_{\text{CO}}$ technology can be valuable in broadly screening for occult CO poisoning. We offer that an elevated $S_{\text{CO}}$ should raise concern about CO poisoning, especially if the evaluating clinician has not considered CO exposure. However, we strongly caution against using $S_{\text{CO}}$ measurement to rule out CO poisoning when symptoms and circumstances suggest it. Returning a misdiagnosed patient to the scene of the poisoning can have devastating and even deadly consequences.

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The authors have disclosed relationships with SciMetrika and Masimo.

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$S_{\text{CO}}$: Let’s Not Throw the Baby Out With the Bath Water—Reply

In reply:

The study by Weaver and colleagues demonstrated that, while the RAD-57 CO-oximeter operated within the manufacturer’s specifications, with 68% of $S_{\text{CO}}$ measurements falling within ±3% of the laboratory carboxyhemoglobin (COHb) measurements of <40%, in several cases the $S_{\text{CO}}$ reported by the RAD-57 underestimated the COHb. This raises concerns about the utility of the RAD-57 in identifying cases of occult CO poisoning, which is one of the primary potential benefits of a point-of-care noninvasive carboxyhemoglobin screening test. Furthermore, Weaver et al’s findings were consistent with other industry representative, in response to our report. He is correct that our technicians and study team were trained by the manufacturer on probe placement. Our concern is that, whether by technical limitations or operator error, the RAD-57 may provide an erroneously low $S_{\text{CO}}$ measurement in a patient with CO poisoning. We agree that $S_{\text{CO}}$ technology can be valuable in broadly screening for occult CO poisoning. We offer that an elevated $S_{\text{CO}}$ should raise concern about CO poisoning, especially if the evaluating clinician has not considered CO exposure. However, we strongly caution against using $S_{\text{CO}}$ measurement to rule out CO poisoning when symptoms and circumstances suggest it. Returning a misdiagnosed patient to the scene of the poisoning can have devastating and even deadly consequences.

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The authors have disclosed no conflicts of interest.

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Anxiety Disorders in Patients With COPD

To the editor:
We read the interesting review by Willgoss and Yohannes “Anxiety disorders in Patients With COPD: A Systemic Review.” Willgoss et al found similarly high levels of anxiety in both in-patient and out-patient samples, and suggested that such a high incidence cannot be explained solely by the presence of an exacerbation-related hospitalization. Rather, anxiety in patients with COPD is most likely to be a chronic and disease-related phenomenon. Their findings also revealed the high prevalence of specific anxiety disorders, including panic disorder and phobic anxiety disorders, with panic disorder being particularly common in patients with COPD.

However, one of the common, yet under-diagnosed, comorbidities that complicates the clinical picture of patients with COPD is the overlap syndrome: the coexistence of obstructive sleep apnea (OSA) and COPD. Lacedonia et al studied 720 patients with suspected OSA, of whom 168 had overlap syndrome, and 86 had COPD. They found that the overlap syndrome group had lower daytime P_{A,O2} than the OSA group, and the diurnal P_{A,O2} in the overlap syndrome group correlated with age and with FEV1. Overlap syndrome causes more severe nocturnal hypoxemia than either OSA or COPD alone. Therefore, overlap syndrome contributes to daytime hypoxemia and the embarrassing breathlessness, resulting in worsening anxiety and social phobia.

Furthermore, patients with overlap syndrome experience nocturnal hypoxemia, especially during rapid eye movement sleep, resulting in “sensation of suffocation or choking” and fear of death. Those episodes may carry nighttime anxiety to daytime, making anxiety a 24 hour ongoing disorder.

Clinical screening for overlap syndrome should be part of the evaluation of anxiety in patients with COPD, and that should be followed by polysomnography if warranted. Appropriate therapy for overlap syndrome, which may include CPAP and nocturnal oxygen, should be applied. Lack of this therapy may make other treatment modalities, such as antidepressants and psychotherapy, not as effective in reducing anxiety, panic attacks, and number of hospital admissions in patients with COPD.

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Anxiety Disorders in Patients With COPD—Reply

In reply:
We are most grateful for Dr Alkhuja’s intriguing comments on our review published in RESPIRATORY CARE. He raised 2 important, inter-related questions. First, Dr Alkhuja highlights the importance of under-diagnosed comorbidities and their consequences in patients with COPD. In this context, comorbid obstructive sleep apnea (OSA) in patients with COPD, which is often described as the overlap syndrome, is under-recognized and inadequately managed in COPD patients. A recent elegant study by Mann and co-workers found that untreated overlap syndrome in COPD patients was associated with elevated risk of death and hospitalization due to exacerbation, compared to patients who used CPAP. Furthermore, the overlap of COPD with OSA may increase the susceptibility to arterial stiffness, which in turn predisposes to pulmonary hypertension and decline in cognitive function.

Second, the association of overlap syndrome with comorbid anxiety has not been fully investigated. This is partly due to the overlapping clinical symptoms of COPD that may mask the symptoms of OSA. This requires specialized training in sleep medicine for the healthcare professionals (eg, primary care physicians and advanced practice nurses) and comprehensive assessment to detect OSA in COPD patients.

The focus of our systematic review was primarily to underscore the prevalence and the existence of a wide range of clinical anxiety disorders in patients with COPD, which are often not fully recognized and treated. Therefore, we have not explored the association between overlap syndrome and/or OSA in patients with COPD. However, we concur with Alkhuja that OSA is a disabling comorbid disease that may be a risk factor for anxiety. The co-occurrence of OSA in COPD patients increases the frequency of oxygen desaturation, defragments the quality or quantity of sleep due to hypoxemia and hypercapnia, and results in depression, somnolence, and daytime dreaming. All these factors contribute to COPD patients’ increasing burden and worsening prognosis of anxiety symptoms and dependence on their caregivers. Hence, regular screening and monitoring for OSA and anxiety symptoms in patients with COPD is worthy of consideration. Indeed, it will be the first step to detect these disorders and refer patients to sleep centers to receive appropriate treatment.

Finally, there is a lack of robust data on the impact of overlap syndrome and the potential mechanism and its association with cardiovascular disease and COPD. Thus, further studies are required to examine the role of hypoxemia, systemic inflammation, OSA, and clinical anxiety in patients with COPD.