Caregiving and Long-term Mechanical Ventilation

To the Editor:

We read with interest the recent research article by Im and colleagues,1 and were particularly interested to note that they reported that it was difficult to compare their results to other studies of critically ill patients surviving mechanical ventilatory support. While we agree that such studies are rare, the similarity between the work of Im and colleagues and ours2 is remarkable and warrants comparison.

While this study focused on caregivers, the eligibility criteria for patient subjects was different than in our study, and as a result the caregiving experiences most likely were different as well. Im and colleagues defined prolonged mechanical ventilation as a hospital stay of more than 48 hours, while we defined it as >96 h of continuous mechanical ventilation. We selected our definition based on pilot work that identified a significant difference in morbidity and mortality between patients receiving ventilation for 48 h vs 96 h (B. Daly, PhD: unpublished analysis; December 1999). Thus, most likely the patients in the study by Im and colleagues were healthier than the patients in our study,2 and the caregiving experiences and expectations were different as well. It is this difference in eligibility criteria that may explain the differences reported in the two studies.

Another difference between the studies is that Im and colleagues observed caregivers for 2 months after eligibility into the study; we followed caregivers for 6 months after hospital discharge.2 Given the variability in hospital length of stay associated with this patient population, the data obtained 2 months after discharge may not be generalizable to caregivers of patients residing at home. Unlike Im and colleagues,1 we found those differences to be statistically significant (p = 0.039).2 Of note is that a greater percentage of caregivers in our study were employed than in the study by Im and colleagues,1 and that 70.1% of our caregivers received assistance in caregiving activities.

We agree with Im and colleagues that little is known about caregiving needs and experiences after prolonged mechanical ventilation in the ICU. Caregivers of patients receiving prolonged mechanical ventilation are at risk for prolonged depression and poor health. Given the large percentage of caregivers who scored in the “severe” range of the CES-D, these families have needs for support and assistance, not only from family and friends, but from the health-care system as well. However, since patients receiving prolonged mechanical ventilation (and their caregivers) do not fall into any of the other well-studied groups (eg, cancer, Alzheimer disease), they remain unrecognized by the health-care system. In light of our work,2 and the work of Im and colleagues,1 it may be reasonable to consider assessment of these caregivers to identify those in need of referral for mental health services, and to design ways to provide additional support for their caregiving experience.

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To the Editor:

We would like to thank Drs. Douglas and Daly for their commentary on our article,3 which was submitted prior to their article. Although the two studies included slightly different caregiver populations due to different patient eligibility criteria and definition of long-term ventilation in the ICU, some of the results are very similar.

The mean levels of caregivers’ depression (Center for Epidemiology depression scale [CES-D]) are remarkably similar, with similar variability, in these two studies: 13.9 (SD 12.8) and 13.2 (SD 11.0) for Douglas and Daly6 and Im et al,1 respectively. However, these results cannot be compared directly because of the two distinctly different outcome time points, ie, 6 months after discharge from the hospital for the sample used by Douglas et al6 and 2 months following ventilation for the sample used by Im et al.7 We did collect CES-D data at 6 months and 12 months following intubation, but have not published these data yet.
Despite the difference, both studies show similar proportions of caregivers at risk of clinical depression, defined as CES-D score \( \geq 16 \), ie, 36.4% at 6 months after hospital discharge in the study of Douglas and Daly and 33.9% at 2 months following intubation in our study.

Douglas and Daly showed that there was a significant relationship between patient location and caregiver’s CES-D, indicating that caregivers of patients who resided in an institution reported more depressive symptoms than did caregivers of patients who resided at home. In our study, we found a similar relationship, though the p value associated with the parameter for location was 0.07. We did, however, indicate our opinion that it was important to consider strategies to assist caregivers whose care recipients were institutionalized precisely because they may be at greater risk of depression. The findings by Douglas and Daly provide supporting evidence for our proposition.

Most importantly, both studies conclude that caregivers of patients receiving mechanical ventilation do indeed suffer from, or are at risk of, serious clinical depression, something that is not well recognized in the field of caregiving research. We really need to work on developing intervention strategies to help this population. On this issue, we concur with Douglas and Daly.

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1 Im K, Belle SH, Schulz R, et al. Prevalence and outcomes of caregiving after prolonged ( \( \geq 48 \) hours) mechanical ventilation in the ICU. Chest 2004; 125:597–606


Radiographic Opacities

To the Editor:

In their informative review of asbestos-related pleural disease (March 2004), Cugell and Kamp addressed the nature of radiographic opacities that may mimic pleural plaques on the lateral pleural surfaces on chest radiographs. They described one particular triangular-shaped opacity that projected over lateral rib shadows, and cited the work of Gilmartin who ascribed these opacities to slips of the serratus anterior and/or external oblique muscles. Examples of these opacities are provided in Figure 3B, of the authors’ article, and Figure 1 of the article by Gilmartin.

Credit for elucidating the precise nature of these opacities should be given to Kurihara and colleagues. Utilizing a simple but elegant model, they demonstrated that these opacities are due to x-ray photon attenuation effects that are produced when the anatomy of curved ribs is rendered on a two-dimensional radiographic image. Because it is difficult to describe the nature of the attenuation effect, I encourage readers to peruse the illustrations and images in the article by Cugell and Kamp.

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To the Editor:

We thank Dr. Mann for bringing this report to our attention. When reviewing routine chest radiographs, the pleural surfaces often receive only cursory attention. Various pleural shadows can be easily misconstrued as localized areas of fibrosis, or plaques, and therefore may seem to be indicative of asbestos exposure. These shadows include companion shadows, subpleural fat, and the costal groove. Of course, the CT scan is a much superior modality for visualizing pleural abnormalities. Kurihara et al provided a detailed anatomic explanation for the appearance of pleural abnormalities on both chest radiographs and CT scans.

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Don’t Forget the Abdominal Thrust

To the Editor:

I read with interest the article by Dr. Misle et al on the use of the mechanical in-exsufflator in pediatric patients with neuromuscular disease and impaired cough. The article demonstrates how this device can be used in conjunction with noninvasive ventilation to avert respiratory failure and the need to resort to tracheotomy. Additional points can be made, however. While the authors reported that daily accustomization to the device resulted in more effective use during chest infections, they also pointed out that 8% of the patients did not want to use it routinely, thinking that the device was ineffective. Firstly, the authors did

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A final point should be made. In the description of the technique, it states: “The in-exsufflator is placed on the abdomen. The operator uses suction to release air from the exsufflator, and then forcefully compresses the in-exsufflator.” This is not correct. To get the in-exsufflator to function correctly, the in-suction opening must be open and the ex-suction opening closed (or vice versa). This will allow an inward and outward phase to be performed, while the abdominal thrust is performed in between, allowing the patient to cough and clear their airway.

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