Comment on 'Inter-Rater Reliability of Delirium Rating Scales'

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Drs. Bhat and Rockwood recently published an excellent and very helpful review [1] of the inter-rater reliability of different validated delirium rating scales describing the scope of reliability testing of validated instruments for bedside monitoring of delirium in various patient populations. We are writing to strengthen the readers' understanding of the current peer-reviewed literature on delirium monitoring in critically ill (i.e., intensive care unit, ICU) patients, who have the highest documented delirium rates.

Three additional articles have added to the literature on monitoring delirium in the ICU. The Confusion Assessment Method for the Intensive Care Unit (CAM-ICU), the last instrument cited in table 1 of Bhat and Rockwood's article using only one reference [2], has been employed in 3 nonoverlapping cohort studies confirming its very high inter-rater reliability [2–4]. (Note: CAM-ICU downloadable educational materials are available free at <http://www.icudelirium.org>.) These 3 studies have incorporated ~250 patients, ventilated and non-ventilated, with and without dementia, old and young, with high and low illness severity, while using nurse and physician raters. The inter-rater reliabilities in these studies have generally shown κ above 0.90, though the original study incorporating physicians reported inter-rater reliability values between 2 physicians and the nurse of 0.79 and 0.84 [3]. Two other points are worth noting. First, the article by Lin et al. [4] used a Chinese translation in a Taiwanese popu-

lation and found a κ of 0.91, which is one of the many languages that this instrument is now translated into allowing international use in monitoring. Secondly, we have conducted a large-scale implementation study of the CAM-ICU. This year-long quality assurance/quality improvement project included 55 nurses, 711 patients, and two different medical centers [5]. Data were recorded prospectively at least once per 12-hour shift and agreement between nurses and reference standard CAM-ICU raters was high ($\kappa = 0.80$).

Delirium occurs in 60–80% of mechanically ventilated patients [2, 6–8] and is independently associated with untoward clinical outcomes [8, 9], including higher mortality and worse long-term cognitive function [8]. Few critical care professionals (5%) report monitoring for delirium [10], although the Society of Critical Care Medicine recommends routine monitoring for delirium for all ICU patients [11]. Because many etiologies of delirium in the ICU may be preventable and/or treatable (e.g., hypoxemia, electrolyte disturbances, sleep deprivation, anticholinergic medications, or excessive use of sedative agents), routine daily delirium monitoring can be justified in ventilated and nonventilated ICU patients since adverse outcomes have been demonstrated among delirious patients in both populations [8, 9, 12].

Considering the rising overall resource use and economic burden of caring for critically ill patients [13–15], our finding that ICU delirium is an independent predictor

of longer hospital stay is of particular relevance. These data support the Society of Critical Care Medicine clinical practice guideline recommendation [11] for routine monitoring of delirium for all adult ICU patients using validated tools such as the CAM-ICU [2, 3] or the delirium screening checklist [16], another validated instrument that should be included as a choice of monitoring delirium in the ICU.

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Reply

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We thank Drs. Ely and Jackson for their comments and for complementing our review [1] by providing further helpful references on the Confusion Assessment Method for the Intensive Care Unit. In both the additional reports from Intensive Care Units (ICU) [2, 3] the reported κ is substantial (between 0.81 and 1.0). These reports usefully show that a high level of agreement can be obtained in that setting, but two issues suggest that the generalizability to usual care outside ICUs might be suspect. Especially in the setting of a clinical diagnosis, where the line between reliability of expert clinical raters and convergent validity becomes blurred, the usefulness of testing inter-rater reliability is the measure of the discriminatory ability of the instrument under study. Each study [2, 3] excluded people with severe cognitive dysfunction, and while this removes confounders, it also diminishes our understanding of the discriminatory ability of the tool in cognitively im-

paired elderly people. A second issue is the context of evaluation; even though the studies estimated reliability from the 'first alert or lethargic' evaluation, both the studies had multiple evaluations – in the study by Ely et al. [2] 38 patients had 293 evaluations, and in the study by Lin et al. [3] an attempt was made to study all 102 patients every day for the first 5 days of their ICU stay. While this is certainly necessary and feasible in an ICU, it is different from a typical medical, surgical or geriatric ward. This strategy does, however, help to define the acuity of onset with greater clarity and it is this feature (along with fluctuation in consciousness) that is common to both the Confusion Assessment Method [4] and the Delirium Rating Scale [5]. Thus these additional delirium inter-rater reliability studies help elaborate points from our review, especially that core features of delirium need re-examination.

References

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