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Ultra-Brief Delirium Assessments – Are They Ready for Primetime?

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Delirium is a form of acute brain failure that affects up to 64% of older hospitalized patients and is associated with a multitude of adverse outcomes.[1] Healthcare providers, regardless of clinical setting, do not identify delirium in approximately 75% of cases.[2,3] The paucity of brief and simple delirium assessment tools has been a barrier to improving delirium recognition.

To address this unmet need, several ultra-brief (<30 seconds) have been recently studied. In this issue of *Journal of Hospital Medicine*, Fick et al. evaluated 20 individual components of the "3-minute diagnostic interview for delirium using the Confusion Assessment Method" (3D-CAM), which is a delirium assessment recently validated for older hospitalized patients.[4] They observed that the best performing single-item delirium assessment was the months of the year backwards (MOTYB) task from December to January. This task assesses for inattention, a cardinal feature delirium. Using a cut-off of 1 or more errors, the MOTYB was 83% sensitive and 69% specific for delirium.[5] By adding "name the day of the week", the sensitivity increased to 93% with similar specificity (64%). This supports research by O'Regan et al. who examined MOTYB, but defined a positive screen if they could not recite the months backwards from December to July perfectly. They observed a sensitivity and specificity of 84% and 90%, respectively in older hospitalized patients.[6]

The assessment of arousal, another feature of delirium, has also garnered significant interest as another ultra-brief delirium screening method. Arousal is the patient's responsiveness to the environment and can be assessed during routine clinical care. Fick et al. observed that impaired arousal using the 3D-CAM was 19% sensitive for delirium. This is in contrast to others who have reported sensitivities of 64% to 84%.[7–9] The difference in sensitivity may be in part explained by the method used to detect arousal. The 3D-CAM asks "Was the patient sleeply, stuporous, comatose or hypervigilant?" The previous studies used the

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Richmond Agitation Sedation Scale (RASS), an arousal scale based on eye contact and physical behaviors to assess patients from −5 (coma) to +4 (combative).[10] Therefore, it is important to consider the method of arousal assessment if using this feature for delirium screening.

These ultra-brief delirium assessments would be even more clinically useful if they identified patients at high risk for adverse outcomes. In this same journal issue, two studies evaluated the prognostic ability of several ultra-brief delirium assessments. Zadravecz et al. observed that an abnormal RASS was a moderately good predictor of 24-hour mortality with an area under the receiver operating characteristic curve of 0.82.[11] Yevchak et al. observed that an abnormal RASS or MOTYB was associated with longer hospital length of stays, increased n-hospital mortality and need for skilled nursing.[12]

Viewed as a whole, these studies represent a significant advancement in delirium measurement and have the potential to improve this quality of care issue. However, uncertainties still exist. (1) Can these ultra-brief delirium assessments be used as standalone assessments? Based upon current data, these assessments have a significant proportion of false negative and positive rates. The effect on such misclassification on patient outcomes and healthcare utilization need to be clarified. Because of this concern, Fick et al. recommended performing a more specific delirium assessment in those who have a positive MOTYB screen.[5] (2) What is the optimal cutoff of MOTYB and does this cut-off vary in different patient populations? The optimal cutoff will depend on whether or not a more sensitive test (lower error threshold) or specific test (higher error threshold) is desired. The optimal cutoff may also depend on the patient population (e.g., demented versus non-demented). (3) Most important to practicing hospitalist and patients, will introducing these ultra-brief delirium assessments improve delirium recognition and improve patient outcomes? The impetus for widespread implementation of these assessments would be strengthened if healthcare providers successfully applied these assessments in clinical practice and subsequently improved outcomes.

In conclusion, the MOTYB and the assessment of arousal may be reasonable alternatives to more conventional delirium screening especially in clinical environments with significant time constraints. However, additional research is needed to better refine these instruments to the clinical environment they will be used and determine how they impact clinical care and patient outcomes.

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