

A promising new scoring system to detect and predict delirium in the acute clinical setting

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Title Delirium risk stratification in consecutive unselected admissions to acute medicine: validation of a susceptibility score based on factors identified externally in pooled data for use at entry to the acute care pathway

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Summary

Existing delirium risk scores in older people use factors obtained from single-institution-derived data sets which are complex and of low reliability.¹ The authors have studied a pragmatic and reliable scoring system that can be used in acute medical wards on admission to predict delirium susceptibility.

Patients admitted to a teaching hospital over two 8-week periods were screened for delirium on arrival and thereafter until the end of care in the hospital. A total of 308 patients > 65 years were admitted during the 4-month period. All patients had a validated cognitive screen using the Confusion Assessment Method² and Mini-Mental State Examination³ or Abbreviated Mental Tests.⁴ Delirium was diagnosed according to DSM IV criteria and was classified as incident delirium (on admission) or prevalent delirium (onset after 48 hrs of admission). Preadmission data on comorbidities, data on nutrition, pressure sore risk, incontinence, falls, constipation, sleep deprivation, length of stay and care needs on discharge were recorded.

The susceptibility score was designed to predict the risk of prevalent or incident delirium. Factors reported in the UK NICE guidelines⁵ from pooled meta-analyses as independently associated with delirium were selected. These factors are also readily available on initial clinical assessment. Scores were assigned according to the strength of association reported in the guidelines.

1. Previous history of diagnosis of dementia/cognitive impairment based on MMSE < 29 or AMTS < 9 – score 2
2. Age > 80 – score 2.
3. Severe illness* – score 1

4. Working diagnosis of infection – score 1.
5. History or clinical impression of visual impairment – score 1

*Severe illness scoring based on at least two of the following: HR > 90 bpm, RR > 20 pm, temp < 36 or >38°, white cell count < 4 or > 12.

Reliability of the score for delirium was established using the area under the receiver operating characteristic curve (AUC). AUC was 0.78 (95% CI 0.71–0.84) for any (both prevalent and incident) delirium. The odd ratios for risk score 5–7 vs < 2 were 17.9 (5.4–60.0) with a p value of < 0.0001.

Opinion

Delirium is a common condition which is often under-recognised during acute admissions. It is a clinical syndrome characterised by disturbed consciousness, cognitive function or perception, which has an acute onset and fluctuating course. It can also be described as a state of acute brain failure, indicating the status of reserve brain capacity, dependent on the severity of the triggering factors.

Highlighting this diagnosis is extremely important because delirium is associated with longer hospital stay, increased risk of hospital acquired infections, falls and pressure sores, higher incidence of dementia and higher mortality.⁵ Delirium can be prevented if the predisposing factors can be identified early and preventive measures put in place. Early detection of delirium and appropriate management would reduce the frequency of adverse outcomes.

Diagnosis of delirium is based on changes to patients' cognitive and physical function and behaviour over a short

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period of time (usually 48 hrs). However the information that points towards this specific history is often not available during acute admissions. Hence doctors are often left with making a very non-specific clinic diagnosis in the acute phase such as ‘?acute confusion’.

A more practical and easy-to-use score was studied by the authors in which five clinical parameters were used to produce a score from 1–7.

This score identified patients susceptible to delirium (both prevalent delirium, that is present at admission or within 48hrs of admission, and incident delirium that presents after 48 hrs); the higher the score, the higher the predictive value in susceptibility to delirium. Therefore patients could be classed as those with low risk (score < 1), intermediate risk (2–4) and high risk (> 4). Higher scores were also found to be associated markers of frailty, high care needs and poor outcomes. Three-quarters of those with high scores (5–7) were found have delirium.

The advantages of this scoring system compared to previous ones is obvious in that the information used for this system is readily available at the time of admission and does not depend on detailed collateral history (e.g. previous cognitive and physical state, exact duration of symptoms, medication history, history of incontinence, falls and other medical history, brain imaging findings, etc.) or detailed clinical findings. This makes it ideal for use in acute settings such as Emergency Departments and Acute Medical Units, where patients can be triaged and those at high risk of delirium being offered appropriate care.

The score was developed using factors reported as independently associated with delirium in pooled analyses from multiple studies,⁽⁵⁾ compared to existing scores which are based on factors from single data sets. The score was noted to be as reliable as the existing scores using statistical methods such as AUC, sensitivity, specificity and predictive values. Further statistical assessments on the reliability of the model were determined to guarantee the robustness of this model compared to the existing ones and found to be as reliable.

As this study did not include independent verification of the diagnosis of delirium, further analysis including this is recommended before the widespread application of this scoring system in clinical practice. Also a lack of a previous diagnosis of dementia based on previous Mini-Mental State Examinations or Abbreviated Mental Test scoring may limit the application of this score in the acute setting in some patients. Further assessment will be required to evaluate the utility of the score in routine clinical practice and whether it can be used to target clinical interventions to improve patient outcomes.

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