Utility of the 4AT assessment of delirium in acute care: a multi-centre blinded independent rater diagnostic test accuracy study

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Background

Delirium remains underdetected

The 4AT is a rapid delirium detection tool that is designed for routine clinical use

The 4AT (4 "A"s Test):
- Alertness
- Attention
- Abbrev Mental Test-4
- Acute change

Download: www.the4at.com

✓ Takes <2 minutes
✓ Suitable for use in normal clinical practice
✓ No special training is required
✓ Allows assessment of ‘untestable’ patients (with severe drowsiness / agitation)
✓ Includes brief cognitive tests

Methods

Randomized, double-blind diagnostic test accuracy multi-site study

785 patients aged >=70

In the Emergency Department <12 hours, or acute wards < 96 hours

(1) DSM-IV reference standard delirium assessment informed by the Delirium Rating Scale-Revised-98, and (2) randomized to 4AT / CAM (with randomized order of reference standard, and 4AT / CAM).

Results

Mean age 81.4 (SD 6.4) years

55% female

9% known dementia

Delirium prevalence: Reference standard = 11.7%
4AT >3 = 14.3%
CAM+ = 4.7%

4AT had area under the receiver-operator characteristic curve of 0.90 (95% CI 0.84-0.96).

Scores on the cognitive test items of the 4AT were moderately sensitive and highly specific in relation to dementia diagnosis.

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<th>Specificity</th>
<th>Sensitivity</th>
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<td>4AT &gt;3</td>
<td>94% (91-97%)</td>
<td>76% (61-87%)</td>
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<td>CAM positive</td>
<td>100% (98-100%)</td>
<td>41% (26-57%)</td>
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Length of stay (median, IQR)

4AT >3: 5 (2-14) days
4AT <=3: 2 (1-6) days

Mortality

16.1% 4AT >3
9.2% 4AT <=3

Conclusions

The 4AT has good overall diagnostic accuracy for delirium
Feasible in routine care, acute illness, dementia
Positive score (>3) associated with poor outcomes
Higher sensitivity than CAM in acute care patients