

Evaluation of ICU Delirium: Validity and Reliability of the Delirium Detection Score

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Aims: Using a validated delirium assessment tool significantly improves the ability of physicians and nurses to identify delirium in intensive care unit (ICU) patients. The Delirium Detection Score (DDS) is an 8-item scale modified from the Clinical Withdrawal Assessment for Alcohol, revised scale (CIWA-Ar) and was initially *developed* for measuring severity of delirium in ICU patients. Until now the DDS was still lacking validation against the Diagnostic and Statistical Manual of Mental Disorders IV criteria for delirium. The aim of this study was to validate the DDS against DSM-IV criteria for the use in ICU patients.

Methods: Prospective cohort study: after local ethics committee approval (Approval No. EA2/022/06), we included 156 patients aged > 60 years, newly admitted to the ICU after a surgical procedure staying in the ICU for at least 24 hours. Exclusion criteria were pre-existing psychosis, dementia or depression, non-German-speaking and inability to communicate due to severe hearing loss or brain injury. Trained staff members (nurses and doctors) performed DDS ratings on the first postoperative day (POD). These evaluations were compared against the reference standard, a delirium expert (blinded to the study) who used DSM-IV criteria. **Statistics:** receiver operating characteristics (ROC) analysis, kappa statistics.

Results: 63 out of 156 patients (40%) were identified as delirious by the reference standard during the study. The ROC analysis for the DDS revealed an AUC of 0,841 (confidence interval = 0.772 to 0.895). Based on the ROC calculations, using a cut-off value >2, the DDS had a sensitivity of 0,85 and a specificity of 0,77. The 42 paired observations revealed a "substantial" interrater reliability kappa statistics: 0.79) between nurse and trained staff members.

Conclusion: Using a cut-off value > 2 the DDS showed ability for adequate detection of delirious patients in the ICU.