Validation of a Pain Assessment Tool (CPOT) in Critically Ill Patients with Delirium: A Prospective Cohort Study

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Introduction: The 2013 Clinical Practice Guidelines for the Management of Pain, Agitation and Delirium in Adult Patients in the ICU suggest that pain be routinely assessed using a validated pain assessment tool.(1) Currently available tools have only been evaluated in non-delirious critically ill patients, yet delirium can affect as many as 80% of ICU patients. The validated pain assessment tool adopted by our institution is the Critical Care Pain Observation Tool (CPOT).(2)

Objectives: The objective of this study was to investigate the discriminant validity of this tool in patients with evidence of delirium.

Methods: A prospective cohort of 40 consecutive adult patients deemed delirious on the day of enrolment using the Confusion Assessment Method for ICU were enrolled from one of two ICUs within a tertiary healthcare center. Serial CPOT assessments were conducted simultaneously by study personnel and objective nurses at baseline and after non-painful and painful stimuli. Subjective opinions about pain and objective physical variables (including mean arterial pressure, heart rate, respiratory rate and oxygen saturation) were collected at the same time points. Discriminant validity was described using paired t-tests while internal consistency was described using the Cronbach-alpha statistic. Responsiveness of the CPOT was measured by effect size and reliability was described as the agreement between raters. Comparisons between the CPOT and the subjective assessments and objective measurements were based on positive and negative percent agreement.

Results: CPOT demonstrated excellent discriminant validity as evidenced by a highly statistically and clinically significant change in mean CPOT scores between baseline and nociceptive procedures (mean difference 3.13 ± 1.56, p 0.6) and scores between raters highly correlated (r = 0.957). The CPOT possessed a high level of internal consistency (overall Cronbach alpha 0.778). Percent agreement was found to be greater between the CPOT and the nurse’s subjective opinion of the presence or absence of pain as compared to the CPOT and physiologic parameters (80.5 vs 67.5 respectively).

Conclusion: The CPOT is a valid pain assessment tool in non-comatose, delirious adult ICU patients who are unable to reliably self-report the presence or absence of pain.