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OUTCOMES OF INTERFACILITY CRITICAL CARE ADULT PATIENT TRANSPORT: A SYSTEMATIC REVIEW

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Objective: To determine the adverse events and important prognostic factors associated with interfacility transport of intubated and mechanically ventilated adult patients.

Design: Systematic review of MEDLINE, CENTRAL, EMBASE, CINAHL, HEALTHSTAR, and Web of Science (from inception until January 10, 2005) for all clinical studies describing the incidence and predictors of adverse events in intubated and mechanically ventilated adult patients undergoing interfacility transport. Bibliographies of selected articles were also examined.

Results: Five studies (245 patients) met the inclusion criteria. All were case-series and two were prospective in design. Due to the paucity of studies and significant heterogeneity in study population, outcome events, and results, we synthesized data in a qualitative manner. Pre-transport severity of illness was reported in only one study. The most common indication for transport was a need for investigations and/or specialist care (3 studies, 220 patients). Transport modalities included air (fixed or rotor wing; 66% of patients) and ground (31%) ambulance and commercial aircraft (3%). Transport teams included a physician in three studies (220 patients). Death during transfer was rare ($n = 1$). No other adverse events or significant therapeutic interventions during transport were reported. One study reported a 19% (28/145) incidence of respiratory alkalosis on arrival and another study documented a 30% overall intensive care unit mortality, while no adverse events or outcomes were reported after arrival in the three other studies.

Conclusions: Insufficient data exist to draw firm conclusions regarding the mortality, morbidity, and/or risk factors associated with the interfacility transport of intubated and mechanically ventilated adult patients. Further study is required to define the risks and benefits of interfacility transfer in this patient population. Such information is important for the planning and allocation of resources related to transporting critically ill adults.

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VALIDITY AND RELIABILITY OF BEDSIDE NURSING ASSESSMENTS OF PAIN, SEDATION AND DELIRIUM

François Marquis, Rahima Jamal, Isabelle Ayotte, Sébastien Ouimet, Yoanna Skrobik

Introduction: Critically ill patients should routinely be evaluated for the presence and intensity of pain, assessed as to their sedation level, and screened for delirium. However, assessing both pain and delirium in intensive care unit (ICU) patients is particularly challenging, given the confounding effect of sedation. The purpose of this study was to describe the validity and reliability of real-time practice-based nursing concurrent assessments of pain, sedation and delirium, in an ICU where these three assessments occur as part of routine nursing care.

Methods: Thirty randomly selected nurses were observed by one of two trained adjudicators for documentation and clinical bedside evaluation of pain, sedation level and delirium scoring. The scales were the numeric rating scale,¹ the Richmond agitation and sedation scale² and the intensive care delirium screening checklist³ score for the evaluation of delirium. Each feature was assessed as to documentation in the bedside nursing sheets; accurate use of a scale; and validity of use of the scale with a joint bedside examination of the patient.

Results: The reliability between adjudicators for the bedside evaluation of pain and sedation was 100%. The Cronbach's α score for the evaluation of delirium was 86.3% overall. Except for the agitation/slowing criteria (70.8%), reliability between adjudicators was over 80% for the other seven criteria of the delirium score. A majority of nurses (27/30) documented pain assessments and 20/30 followed recommended standards. Nurses relied on their own evaluation of the patient's pain 25% of the time, without an objective patient-driven scale. Bedside pain evaluation comparing nurses to adjudicators showed perfect correlation. Sedation was often documented (28/30) correctly (27/30); at bedside assessment of sedation, the correlation (r^2) with adjudicators was 0.85 ($P < 0.0005$, Cronbach's α of 0.960). A majority of nurses documented delirium scales (28/30); 18 of the 27 available scores showed proper scale use. Bedside assessments showed a r^2 of 0.854 ($P < 0.0005$, Cronbach's α of 0.957). The daytime shift (mean ICU nursing experience: 11.5 years) had the best overall performance; the night shift was next (mean ICU nursing experience: 2.7 years) and the evening shift (mean ICU nursing experience: 6.3 years) the worst. The highest variability in nursing assessment performance occurred in delirium assessments of psychomotor agitation or slowing.

Conclusions: In a single centre ICU with mandated routine assessments, the evaluation of pain, sedation and delirium occurs over 90% of the time. Assessment quality varies based on type of assessment (with sedation being evaluated best, delirium next best, and pain least well). Daytime, night time, and evening nurses' performance vary significantly, particularly with regard to delirium assessment.

References

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