

Evaluating the Feasibility and Effectiveness of a Delirium Prevention Bundle

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Hypothesis:

H0 A delirium prevention bundle will prevent or reduce delirium in ICU patients. H1 Certain bundle components contribute significantly to reduce or prevent delirium.

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Abstract

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Introduction:

Early identification and modification are key strategies for preventing and decreasing delirium duration. Delirium costs an estimated \$38 to \$152 billion per year per health care systems. Delirium development is associated with negative outcomes in ICU patients, often manifesting as prolonged ICU and hospital lengths of stay (LOS), loss of adaptive function, development of post-ICU cognitive impairment, and increased mortality in ICU population. Many patient environment and iatrogenic factors that contribute to the development of delirium in acute and critically ill patients are modifiable. The overall purpose of the study was to evaluate the effectiveness of a delirium prevention bundle in reducing the incidence and duration of delirium in adult ICU patients.

Methods:

This cohort intervention study was conducted in two medical-surgical ICUs at a large tertiary care hospital in the Texas Medical Center in Houston, Texas. Data Collection involved the use of three instruments: Richmond Agitation Sedation Scale (RASS); Confusion Assessment Method-ICU (CAM-ICU); and a researcher-generated data collection tool.

Results:

Data collected January 2012 through August 2012 resulted in a heterogeneous sample in both the control and intervention units. Sample size was 782 patients with over 23,430 observations. Data was analyzed for patients who had <30 days of observation. Delirium incidence was 43% in all 15 ICUs, which coincides with the national rate. Patients requiring mechanical ventilation or restraint demonstrated statistically significant odds of developing at least one day of delirium ($p < 0.0001$). Patients who stayed in the ICU >3 days demonstrated statistically significant odds of developing at least one day of delirium ($p < 0.001$). Patients with >3 lines, tubes or drains were more likely to develop delirium ($p = 0.017$). Patients who experienced significant events or complications (i.e., active bleeding requiring blood replacement, hemodynamic instability, cardiac arrest, new episode of documented sepsis, etc...) were more likely to develop delirium (OR = 3.86, $p < 0.001$). The odds of developing delirium increased by 2.5% ($p = 0.13$) for every day in the control unit, while the odds decreased by 4.8% ($p = 0.08$) per day for every day in the intervention unit. The overall effect of implementing the bundle reduced the odds of delirium by 7.1% ($p = 0.02$). Early and progressive mobilization significantly decreased the odds of developing delirium by 37% (OR = 0.37, $p = 0.004$), while a small sample size of those on the sedation protocol failed to demonstrate a significant finding.

Conclusions:

It is feasible for staff nurses to effectively use the CAM-ICU at the bedside to assess patients for delirium. Use of a delirium prevention bundle in the ICU setting is an effective and feasible method to decrease the incidence of delirium in ICU patients. Hospitals should consider implementing a core model of delirium prevention care that combines evidence-based strategies with nursing interventions that are integrated into routine ICU care.

Abstract Categories:

Clinical Medicine – Neurology (Monitoring)

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