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Recognizing Delirium in the PICU: An Evidence-Based Practice Improvement Project

Abigail Begovich, RN & Dr. Tracy Brewer, DNP, RNC-OB, CLC, EBP-C

Background
- Delirium is an acute change from a patient’s baseline mental status, presenting as inattention, disorganized thinking, or altered level of consciousness that fluctuates
  - Can by hypoactive, hyperactive, or mixed
- Evidence shows that:
  - Delirium may increase PICU length of stay and hospital costs
  - Benzodiazepines are significantly associated with delirium
  - Younger patients and severity of illness predictors of delirium
- Prevalence of delirium in PICU: 56% in children six months to five years and 35% in children 2-5 years old
- In 2011, delirium screening was not being completed in 71% of PICUs

Purpose and Goal of Project
- Purpose: To increase the recognition of delirium in the PICU with the use of a standardized delirium screening tool
- Goal: That the recognition and subsequent management of delirium may lead to reduced patient length of stay and hospital costs

Framework & Synthesis of Evidence
- Evidence-Based Practice Improvement Model guided the project
  - P-I-C-O question: “In patients admitted to the pediatric intensive care unit, how does using a standardized tool for delirium screening compared to no screening tool affect the recognition of delirium?”
- Evidence critically appraised using JHNEBP Model tools, level, quality grade, and synthesized evidence

Practice Recommendations:
1. All PICU patients should be screened for delirium at least once a shift.
2. The Cornell Assessment of Pediatric Delirium (CAPD) should be used to screen PICU patients for delirium.
3. If the CAPD score is greater than or equal to 9, a provider should be notified as further evaluation is needed.
   - Aim Statement: Registered nurses will complete the CAPD screening once a shift > 85% of the time over 4 months.

Implementation Process
- Educated PICU nurses, float pool nurses, and providers on delirium, delirium screening tool, and interventions they could use to prevent/manage delirium
- Implemented screening tool first on paper and then transitioned to Electronic Medical Record

Outcomes Measured:
- Demographic Data (age, gender, race, ethnicity)
- Individual CAPD Scores
- Delirium: Yes/No
- PICU & hospital length of stay
- Compliance of screening tool
- Midazolam Usage (continuous drip/bolus)

Results
Demographics
- Gender:
  - Male: 56%
  - Female: 44%
- Age:
  - 5 years old: 44
  - 3-5 years old: 38
  - 2-2.9 years old: 29
  - Under 2 years old: 65
- Race:
  - Caucasian: 143
  - African American: 20
  - Other: 26
- Hispanic/Latino: 14
- Married: 17

Screen Compliance
- Average CAPD score during intervention: M̅= 11.05 + 5.57 (SD)
- Average CAPD score after intervention: M̅= 7.29 + 6.5 (SD)
- No statistical significance for post intervention: p=0.000

Findings
- Inter-rater reliability: 27 patients were independently scored by bedside & charge RN
  - Intraclass coefficient: 0.59 (p=0.001)
- Delirium: Yes/No
  - Delirium: > 6 for 48 hours or longer
- Length of stay was statistically significant to delirium, p<0.001
  - Median of 3 days for patients without delirium versus 17.5 for those with delirium

- Average CAPD score during intubation: M̅= 11.36 + 4.86 (SD)
- Average CAPD score after intubation: M̅= 7.29 + 6.5 (SD)
- No statistical significance for patient’s receiving Midazolam versus not receiving on length of stay, p=0.58
- Patients < than a year old were 5.8 (95% CI: 1.81, 18.33) times more likely to experience delirium than patients 11 years and older
- Patients categorized as developmentally delayed were 49.3 (95% CI: 9.62, 252.6) times more likely to develop delirium than those not categorized as having developmental delay
- Average CAPD score pre-intervention: M̅= 13.52 + 5.61 (SD)
- Average CAPD score post-intervention: M̅= 11.05 + 5.57 (SD), p=0.009

Clinical Implications
- This QI project was done in 1 PICU over a 4-month period and cannot be generalizable
- Integrating screening tool into EMR increases compliance
- Delirium increased length of stay
- Being under the age of one and being developmentally delayed increase the likelihood of a positive delirium score
- Limitations: Interrater reliability assessed at beginning of month period

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