**INTRODUCTION**

- Delirium is a form of acute brain dysfunction with reported prevalence between 16-80%, depending on patient population.
- Delirium is associated with longer hospital stays, increased re-admissions, poor cognitive and functional outcomes, and increased mortality.
- Risk factors include: 1) patient-related factors (e.g., age, previous dementia, diabetes) and 2) iatrogenic factors (e.g., benzodiazepines, opioids, hypoxemia).
- The CAM-ICU is a validated and well-published tool that allows for rapid diagnosis of both hyperactive and hypoactive delirium by bedside nurses.
- Little data exists about emergence and post anesthesia care unit (PACU) delirium and most prior studies have not utilized validated delirium monitoring tools, likely missing hypoactive delirium.

**STUDY AIMS**

- **Aim 1**: To study the incidence of emergence and PACU delirium in postoperative patients.
- **Aim 2**: To study the risk factors for emergence and PACU delirium in postoperative patients.

**METHODS**

- Co-investigator PACU nurses were trained in delirium monitoring by research nurses adept at performing the CAM-ICU; inter-rater reliability was assessed prior to study and proved satisfactory.
- We performed a prospective cohort study of adult patients admitted to the PACU after surgery.
- Exclusion criteria included severe baseline dementia, anoxic brain injury or neuromuscular disorders, and deaf or unable to understand English.

**RESULTS**

- **Patient Characteristics**
  - **Variable**, **N = 400**
  - **Age (yr)**: 57 (44 – 67)
  - **Preop + Intraop Midazolam (mg)**: 2 (0 – 2)
    - 0 mg: 31%
    - 0.5 – 2 mg: 65%
    - > 2 mg: 4%
  - **Preop + Intraop + Postop Midazolam (mg)**: 2 (0 – 2)
    - 0 mg: 31%
    - 0.5 – 2 mg: 63%
    - > 2 mg: 6%
  - **Preop + Intraop Fentanyl Equivalents (mcg)**: 250 (150 – 383)
  - **Preop + Intraop + Postop Fentanyl Equivalents (mcg)**: 383 (200 – 554)
  - **Anesthetic Duration (min)**: 140 (67 – 207)
  - **Inhalation Agent (N)**: 398 (97%)
    - Sevoflurane: 53%
    - Desflurane: 35%
    - Isoflurane: 12%
  - **ASA Classification**: 3 (2 – 3)
    - 1: 4%
    - 2: 44%
    - 3: 49%
    - 4: 3%
  - **Emergent Delirium n (%)**:
    - Agitated emergence per OR staff: 154 (38%)
    - Positive CAM-ICU on PACU admission: 124 (33%)
  - **PACU Delirium n (%)**:
    - Positive CAM-ICU at 30 min: 67 (17%)
    - Positive CAM-ICU at 60 min: 59 (15%)
    - Positive CAM-ICU at Discharge: 59 (15%)

**CONCLUSIONS**

- Emergence and PACU delirium are common after surgery.
- Delirium incidence is highest on emergence and PACU admission and decreases during PACU stay.
- Anesthetic duration is associated with emergence delirium.
- Total perioperative opioid administration is associated with PACU delirium.
- Further research is needed to confirm these findings and to identify additional risk factors for emergence and PACU delirium.

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