ORIGINAL ARTICLE

Military Service Members and Emergence Delirium Screening: An Evidence-Based Practice Project

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Purpose: *Emergence delirium (ED) is a postoperative phenomenon characterized by agitation, confusion, and violent physical or verbal behavior that can occur after general anesthesia. Preoperative identification of patients at risk for ED may allow providers to take steps to minimize the incidence or severity of ED. Because no formal tool currently exists, the purpose of this project was to develop and evaluate a screening tool based on available evidence of ED risk factors.*
Design: *This quality improvement project used a preimplementation and postimplementation design.*
Methods: *One hundred consecutive adult patient charts were reviewed 2 months before implementation of the project questionnaire. These data were used to confirm preimplementation screening rates. Postimplementation, prospective data were gathered to test this newly developed assessment tool for usefulness in the clinical setting.*
Findings: *The use of this focused screening tool significantly increased preoperative identification of patients at risk for ED compared with the preimplementation preoperative screening routine. Identification rates for at-risk patients rose from 5% to 21%-22.5% using this tool.*
Conclusions: *This project demonstrated that the use of a focused tool to identify risk factors for ED could significantly increase actual identification rates for at-risk patients in the clinical setting.*

Keywords: *emergence delirium, preoperative, quality improvement, emergence delirium screening, preanesthesia screening.*
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EMERGENCE DELIRIUM (ED) is a postoperative phenomenon that can occur during recovery from general anesthesia. Characteristics of ED may include transient agitation, confusion, and sometimes violent physical and/or verbal behavior in the operating room (OR) or in the postanesthesia care unit (PACU).[1] Known originally as postoperative psychosis, ED was first documented in 1819[1] and is commonly referred to in the medical literature as emergence agitation, emergence excitement, inadequate emergence, and postoperative delirium.[2]

This phenomenon occurs in approximately 3.0% to 4.7% of the general population after general anesthesia, with most of these incidences occurring in pediatric patients.[3,4] However, recent research has suggested that the incidence of ED may be as high as 20% to 27% among combat veterans.[5] In a retrospective study, McGuire[6] suggests that the occurrence of ED may be as high as 50% among combat injured veterans and those with pre-existing mental health diagnosis such as post-traumatic stress disorder (PTSD), anxiety, or depression. Wilson[7] found that 78% of participating US Army anesthesia providers had encountered ED occurrences in their own practice.

Patients, specifically military service members, with ED can present in the OR or PACU with emotional and physical outbursts, such as uncontrollable thrashing and combativeness to inconsolable grief. This may result in the accidental or premature removal of endotracheal tubes and intravenous (IV), intra-arterial, or urinary catheters.[3,5] Hyperactive motor activity, pulling at monitoring equipment/tubes/lines/drains, and disruptive psychomotor behavior requiring additional staff are typical for patients with ED.[2] These patients may experience flashbacks and attempt to get out of bed to get "back to the lines" or begin yelling "battle instructions." They may become antagonistic, belligerent, or even combative with OR and PACU staff.[7] Surgical wound dehiscence, bleeding, aspiration after self-extubation, increased pain, and injuries to staff are also important considerations.[1,3]

Behaviors associated with ED are a potential detriment to the patient, care providers, and other patients. Patients with ED may severely limit the PACU nurses' ability to provide needed monitoring and timely interventions to optimize medical care and patient safety. Often, increased medications, including sedatives, analgesics, and antihypertensives, are needed for these patients. Combative behavior may cause a significant delay in the administration of medications, particularly when IV access is compromised or lost.[3,8] Extra nursing staff are often required to calm or restrain aggressive or irrational patients.[2,3] Patients with ED also have significantly longer PACU stays than patients without ED.[3,9]

Review of the Literature

The underlying cause of ED is not well understood, but researchers have suggested several associated factors that increase the likelihood of developing ED in the postanesthesia period. These risk factors are divided into three categories: (1) risk factors related to the patient; (2) risk factors related to the preoperative or intraoperative period; and (3) risk factors related to the postoperative period. Although some patients and surgical factors cannot be changed during the perioperative period, early recognition and understanding of the risk factors that impact ED occurrence and knowledge of patients most at risk can allow anesthesia and PACU personnel to maximize patient safety and optimize clinical outcomes.

Lovestrand et al[5] noted that patients with a preexisting diagnosis of PTSD or combat injuries have a significantly higher incidence of ED. A large number of these patients are regularly cared for in military medical facilities. One study noted that ED symptoms were anecdotally observed 27% of the time by Certified Registered Nurse Anesthetists caring for the combat veteran population.[6] This same study also found a positive correlation between ED and anxiety, and PTSD and depression. Patients with traumatic brain injury (TBI), estimated to occur in 10% to 20% of the combat-exposed population, have a higher rate of confusion in the PACU, resulting in higher acuity.[1]

In addition to combat injuries and mental health diagnosis, there are other factors described in the literature as associated with increased ED incidence. For example, increased levels of preoperative anxiety have been linked to increased incidence of ED.[10] ED was found to be more common in males than female patients.[9] Surgical site has also been linked to increased incidence of ED. Specifically