

From the Desk of the Editor

Delirium in ICU patients: A syndrome ICU staff better not miss

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Delirium is the most common psychiatric syndrome found in the general hospital setting specially in the critical care units and thus often referred to as “ICU psychosis”. Eisendrath¹ defined “ICU syndrome”/ “ICU psychosis” as an acute organic brain syndrome involving impaired intellectual functioning and occurring in patient treated in critical care unit.

Different authors have used the terms that used interchangeably for ICU psychosis. They are “ICU syndrome”, “ICU delirium”, “acute brain failure”, “acute confusional state”, “toxic encephalopathy” and “organic brain syndrome”

In 1966, McKegney² coined the term “intensive care syndrome” to describe the ‘madness’ increasingly encountered in patients in cardiovascular recovery rooms, coronary care units, chronic dialysis facilities and other intensive treatment programs. McKegney emphasized the importance of the treatment setting in causing, preventing and treating such syndromes.

According to Diagnostic and statistical Manual of Mental disorders of American Psychiatric Association – IVth Edition (DSM IV)³ delirium is defined as “a disturbance of consciousness with inattention accompanied by a change in cognition or perceptual disturbance that develop over a short period (hours to days) and fluctuates with time”. Delirium is a syndrome of several different etiologies characterized by a disturbance of consciousness with accompanying change in cognition. Characteristic features of the syndrome include impaired short-term memory, impaired attention, disorientation, development over a short period of time, and a fluctuating course. The diagnosis of ICU psychosis or delirium can be made only in the absence of a known underlying medical condition that can mimic the symptoms of ICU psychosis.

Clinical manifestations are sudden onset of impairment in cognition, disorganized thinking, difficulty in concentrating, problem in orientation in time and /or place and /or person, altered affect often with emotional lability, altered perception of external stimuli, impairment of memory, changes in sleep wake cycle, hallucinations.³

DSM III⁴ outlined three different clinical forms of delirium. They are hypoactive, hyper active and mixed types. Hyperactive delirium accounts for 1.6% cases of delirium and ICU psychosis is an example of hyper active delirium. Common scenario is that ICU nurses and physicians are unaware of the presence of hypoactive delirium and only recognize this disturbance in agitated patients (hyperactive delirium). Immobile, nonverbal patients, hooked up with ventilator, multiple wares all around body, lines in every inlet,

sedated, sometimes therapeutically paralyzed; can draw attention only by becoming agitated!

Delirium is commonly underdiagnosed or missed in ICU. Prevalence of delirium in ICU is around 32.3% and incidence of delirium in ICU ranges from 45% to 87%.^{5,6} Incidence appears to vary related to mechanically ventilation status of the patient, 20% in non- intubated ICU patients, 80% in mechanically ventilated patients.⁷

ICU doctors should be aware of some individual risk factors for ICU delirium which are often present before ICU admission such as advancing age , alcoholism, smoking hypertension, APOE4 polymorphism, cognitive impairment, hearing or visual impairment, depression etc.

Several other factors for delirium are directly associated with patient’s critical illness and management in ICU. These are pain not adequately controlled in ICU, acidosis, anemia, infection/sepsis, hypotension, metabolic disturbances, respiratory disease, high severity of illness, heart failure (inadequate cardiac output), acute cerebral disorder such as cerebral edema or stroke, hemodynamic disturbance, nutritional and vitamin deficiency, medication (drug) reaction or side effects, prolonged mechanical ventilation.

There are several iatrogenic factors as well. These are immobilization , medication e.g. opioids, benzodiazepines, sleep disturbance, cumulative analgesia , dehydration, withdrawal from alcohol or hypnotics.⁸ Environmental effects like sensory deprivation , continuous light levels in patient environment, stress, lack of orientation , frequent medical monitoring (blood collection for bedside sugar checking, ABG etc.) can aggravate delirium.

ICU doctors should know that delirium is not merely a mental condition and it has significant effect on physical wellbeing and prognosis in terms of weaning from ventilation, length of stay in hospital and ICU, mortality, financial burden of patient in intensive care unit.⁹⁻¹²

Elly et al. looked into the relationship between delirium in the intensive care unit (ICU) and outcomes including length of stay in the hospital, length of stay in ICU, mortality rate⁹. In this study, delirium was the strongest predictor of length of stay in the hospital (P=0.006) even after adjusting for severity of illness, age, gender, race, and days of benzodiazepine and narcotic drug administration.

Delirium is common yet an underdiagnosed form of organ dysfunction, and its contribution to patient outcomes in ICU has negative prognostic effects. Delirium is an independent predictor of higher 6-month mortality and longer hospital stay even after adjusting for relevant covariates including coma. Delirious patients has increased chance of aspiration, weaning

failure from mechanical ventilation, increased re-intubation risk and increased cost of ICU and hospital⁹.

Delirium is often underdiagnosed probably due to clinical aspects, such as mechanical ventilation, which may limit verbal communication precluding the performance of an adequate cognitive assessment in ICU patients¹³

Like all monitoring devices used by ICU doctors it is necessary to use monitoring systems or methods to assess brain dysfunction in delirium. ICU doctors should familiarize themselves with two well accepted diagnostic tools. They are Intensive Care Delirium Screening Checklist (ICDSC) and the Confusion Assessment Method for the ICU (CAM-ICU).^{14,15} ICDSC is composed of eight components and each patient is assigned a score from 0 to 8. A cut-off score of 4 has sensitivity 99% and specificity 64% for identifying delirium.

Validation of CAM-ICU by Ely et al.¹³ demonstrated a sensitivity between 95% and 100% and a specificity between 89% and 93%. The validation of ICDSC was performed in a medical-surgical ICU, yielding a sensitivity of 99% and a specificity of 64%.¹⁶ The CAM-ICU has a fast application (2-5 min) and does not depend exclusively on the verbal response, thus being relevant for patients on mechanical ventilation.^{16,17}

The CAM-ICU is an adaptation of the Confusion Assessment Method by Inouye (1990), the most widely used instrument for diagnosing delirium by internists and non-psychiatric clinicians. It is one of two monitoring tools recommended by the Society of Critical Care Medicine's Clinical Practice Guidelines for the Management of Pain, Agitation, and Delirium in adult patients in the ICU. It can be adapted for use with patients with hearing (with special pictures) and visual disturbances and is easily reproducible. Staff training should include methods to assure reliability of assessment and to maintain performance after initial training.

While measuring delirium status using CAM ICU, fluctuations of baseline mental status are scored using Richmond- Agitation – Sedation scale (RASS)¹⁸. If score is more than -4 (-3 through +4) then should proceed to next step of CAM ICU which is inattention and disorganized thinking or altered level of consciousness. If RASS is -4 or -5 then CAM- ICU is not applicable. Altered mental status is considered if RASS score is anything other than zero. ICDSC and CAM-ICU allow non- psychiatric physicians and nurses to diagnose delirium in ICU patients rapidly and reliably even when patient cannot speak because of endotracheal intubation

Management strategy for ICU psychosis is to “wait and watch”. Pharmacotherapy is not always an answer. Optimizing continuity of health care personnel, clear concise communication, repeated verbal reminders of time place and person, bedside clock, calendar, radio, newspapers readily accessible for orientating in time should be available.

One should simplify the environment by making available single room with reduced noise levels and remove unnecessary equipment. Nurse should adjust lighting

according to day and night cycle. Among therapeutic interventions, adequate pain management, avoiding offending drugs, balancing fluid and electrolytes, treating infection, correcting hypoxia & hypoglycemia, treating underlying cardiac problems, changes in activity levels, early mobilization are worth mentioning.

Delirium prevention is a challenge for ICU staffs, using more liberal visiting policies. It is done by providing periods for sleep, minimizing shift changes in the nursing staff caring for a patient, orienting the patient to date and time, asking the patient if there are any questions or concerns by talking with the family to obtain information regarding religious and cultural beliefs. Even coordinating the lighting with the normal day-night cycle etc., can help patient to remain in their normal senses.

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