

Mini Review

Intensive Care Unit: Psychosis

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ABSTRACT

A unique clinical phenomenon of “Sun-downing” in Intensive Care Unit (ICU) setting has been discussed inconsistently over the years despite many clinical observations documented in medical literature. Most health-care professionals define the term “sun-downing” or “ICU psychoses” as late afternoon neuropsychiatric behavior changes such as agitation, confusion, disorientation, associated with or without delirium. There is an important relationship between alterations in biologic circadian rhythm and sun-downing in a

chart review of demented patients. Increased shadows and low lighting were also shown to contribute to late-day agitation and confusion. Thus, it is hypothesized that behavioral symptoms emerge as the daylight levels decline during the evening/night hours. We suggest combination therapy of both bright light plus melatonin in the management of ICU or sun-downing psychosis for critically ill patients with agitation, confusion, disorientation, associated with or without delirium.

Keywords: Psychosis, ICU

Introduction

In past 60 years, there is a more advancement in technology and medical sciences have prompted the function of many different intensive care unit and patient care. Most early report of psychosis in such setting concerned postoperative delirium in patient who are undergoing open and closed heart surgery [1-3].

In 1966, McKegney 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 [4].

More recently, Eisendrath [5] defined "ICU Syndrome" as an acute organic brain syndrome involving impaired intellectual functioning and occurring in patients treated within a critical care unit. "ICU psychosis" was present when the impairment prevented the patient from accurately judging reality [4].

The aims of study understand about meaning of ICU psychosis, causes, signs and symptoms and management. ICU psychosis is dangerous because it impedes the delirium if not

treated on time. So it is very necessary to understand about the topic and must be involved all medical and nursing professional in care to prevent it. This study will help to prevention and management of ICU psychosis (Table 1).

Literature Review

Causes of ICU psychosis [6]

Pathophysiology

Delirium reflects diffuse brain cell metabolic dysfunction. Cortical and subcortical structures subserving arousal, alertness, attention, information processing and maintenance of normal sleep-wake cycles are affected. Dysfunction may occur at synapse, cell membrane and neurotransmitter levels [7].

The electroencephalogram (EEG) usually shows bilateral diffuse slowing and disorganization of integrated activity in quiet delirium. In agitated delirium, low voltage fast activity may predominate. The degree of slowing is proportionate to the decrease in cerebral blood flow, metabolic rate and oxygen consumption [7-9].

Rapid eye movement sleep intrusion into the waking state and indogenous hallucinogen production has been proposed as

Table 1: Causes of ICU psychosis.

Environmental Causes	Medical Causes
Sensory deprivation	Critical illness (Respiratory disorder)
Sleep disturbance and deprivation	Pain not be adequately controlled in ICU
Continuous light levels	Medication (drug) reaction or side effects
Stress	Infection creating fever and toxins in the body
Lack of orientation	Metabolic disturbances
	Heart failure (inadequate cardiac output)
	Cumulative analgesia
	Dehydration
Medical monitoring	Withdrawal from alcohol or hypnotics
	Acute cerebral disorder such as edema or stroke
	Hemodynamic disturbance
	Nutritional and vitamin deficiency

etiological mechanisms in agitated delirium [10]. Hypotension, cerebral ischemia, hypoxia and micro emboli are thought to be responsible for delirium and neurological deficits after cardiopulmonary bypass procedures. Shortened perfusion times and the use of micro filters and membrane oxygenators have been associated with a lessened occurrence of cerebral dysfunction. Hypoxia, hypovolemia, hyponatremia, infection, acidosis, hypertensive encephalopathy, direct burn damage and analgesic and hypnotic drug effects all may contribute to post burn delirium [11].

Signs and Symptoms [6,12]

These are shown in Table 2.

Diagnosis

Delirium is a bedside diagnosis. The patient is easily tired and distracted so we can go for mental status examination and neurological examination. The examination should include assessments of level of consciousness, attention, orientation to time, place and people, recent memory, abstraction, perceptual abnormalities (illusions, hallucinations), paranoid or suicidal ideation, and movement disorders (bilateral asterixis). This is usually possible with data from a thorough history and physical examination, supplemented with commonly used laboratory tests [13,14].

Laboratory studies to investigate delirium [13,14]

These are shown in Table 3.

Management

General principles [15]

- Prevention of delirium and psychosis is must essential.

Table 2: Signs and symptoms.

Extreme excitement	Disorientation
Anxiety	Agitation
Restlessness	Delusions
Hearing voices	Abnormal behaviour
Clouding of consciousness	Fluctuating level of consciousness which include aggressive or passive behaviour
Hallucinations	
Nightmares	
Paranoia	

- Morbidity and death can be decrease by early detection and treatment.
- The patient, his disorder, his family, the ICU staff, the primary physician, the treatments and the environment all must be considered for optimal management.
- Therapeutic endeavors do not stop with ICU discharge.
- A trusting relationship with the primary physician facilitates all the above and is central to post-discharge management.

Pre-ICU prevention [15,16]

- If ICU admission is elective, identify and treat predisposing factors if possible. The ICU staff should be alerted to these risk factors and to the current therapeutic regimen.
- Decrease surgical organic precipitating factors.
- Diminish facilitating factors by careful preparation of the patient and family. Planned interventions and possible adverse effects, particularly delirium, should be described.
- A visit to the ICU and a meeting with the staff who will be involved help to orient the patient and establish a working alliance.
- Very anxious or obviously fearful patients stand to benefit most from this approach.

ICU prevention and treatment [17]

- Using more liberal visiting policies
- Providing proper sleep
- Protecting the patient from unnecessary excitement

Minimizing shift changes in the nursing staff caring for a patient,

Orienting the patient

Explain all procedure before doing

Clear patient doubt

Collect history from patient relative

Even coordinating the lighting with the normal day-night cycle

Table 3: Laboratory studies to investigate delirium.

Routine Procedures	Special Procedures
Complete blood count	Blood chemistry tests for creatinine, magnesium, B12, folate, thyroxine, ammonia, serum proteins, osmolality, arterial blood gases, cortisol
Blood chemistry tests for electrolytes, calcium, phosphate, glucose, BUN, liver enzymes	
Urinalysis	Test for levels of medications in the blood
Test for erythrocyte and sedimentation rate	Blood and urine toxic screens
Serological test for syphilis	Blood cultures
Chest X-ray	LE preparation and ANA levels
Electrocardiogram	Urine tests for osmolality, porphobilinogen, 5HIAA
	CSF exam for cells, protein, glucose, culture, serology, pressures

Staff/patient relationships [13]

- Respectful approach
- Improve orientation
- Build trust
- Proper communication
- Autonomy in self-care

Early recognition of delirium and psychosis [13]

- Observe for attention span
- Encourage for reporting of early sign
- Early detection and treatment of organic causes

Facilitating factors [18,19]

- Trustful relation
- Provide adequate information
- Encourage for normal sleep
- Provide calm and quiet environment
- Avoid extra noise and unnecessary machinery
- Provide normal sensory environment : Windows, natural lighting and night light
- Provide privacy
- Proper mobilization
- Allow to ventilate his feeling
- Pain management

Psychopharmacological management

- Severe anticholinergic delirium is best treated with physostigmine (Anticholinergic) and supportive measures [20].
- Delirium tremens requires benzodiazepines and B vitamins [21].
- For other forms of delirium, haloperidol is the drug of choice. The usual regimen is two to ten milligrams intramuscularly (IM) hourly until the patient is calm, usually ten to 60 mg are required [22]. The required total IM dose is then multiplied by 1.5. This amount is given orally, divided into two daily doses with most being given at bedtime. Supplementary five to ten milligram IM or oral doses may be given up to hourly, but only if needed. When the patient has been given no supplementary doses for 24 hours (supplementary doses are seldom required for more than two to three days) the dose is decreased by one third of the total dose each day until the drug is discontinued. In milder forms of delirium, oral doses of two to ten milligrams twice daily may suffice from the onset. In extremely urgent situations an intravenous bolus of one to 25 mg of haloperidol may result in tranquillization in ten to 40 minutes. With all the above

approaches, older patients may require only one-tenth to one-fifth of the doses.

- Akathisia and other extrapyramidal adverse effects may occur. Unfortunately, anti-Parkinsonian drugs commonly worsen delirium. Despite their more marked anticholinergic, autonomic and epileptogenic effects, phenothiazines such as chlorpromazine (Largactil) may be useful for patients who are refractory to haloperidol. Twenty-five milligrams of chlorpromazine is substituted for five milligrams of haloperidol in the regimen already discussed. If close supervision of hourly doses is not possible, 25 mg of chlorpromazine IM or orally four times a day may be initiated and supplemented by hourly IM or oral doses of 25 mg as necessary. Blood pressure and level of consciousness should be monitored [23].
- Major affective disorders with psychotic features are most rapidly and efficaciously treated by ECT. Intravenous maprotiline mesylate treatment was reported as successful in patients for whom ECT was not feasible [23-26].

Patient/family counselling [24]

- Reinforces patient's and family's strengths
- Promotes reality testing,
- reassures, encourages optimism
- Accepts adaptive denial and acknowledges feelings.

ICU discharge and follow up [17]

- Proper preparation for discharge
- Individual and family counselling
- Take medicine on regular time
- Proper follow up

Conclusion

ICU psychosis term we are using since long but very few articles or study has focused on it. In this article we have discussed about meaning of ICU psychosis, causes, pathophysiology, signs and symptoms, laboratory diagnosis and management. Almost 40% of patient who admitted in ICU may have ICU psychosis and their severe symptoms. In this article we understood about how to manage the patient when he or she may present with such condition. Patient with ICU psychosis required psychological care, spiritual care, physical care and pharmacological care. There are several causes which contribute to have delirium but other variables also play vital role to develop it. A comprehensive and aggressive clinical management plan that incorporates appropriate pharmacological agents will result in less morbidity and improved long-term outcomes. Every ICU staffs should be aware of these strategies, institute routine monitoring for delirium in the ICU, seek to reduce the impact of risk factors for delirium when possible, and use treatment options when necessary. We contend all about ICU psychosis and application of the content into practical will help

in prevention of ICU psychosis. In future we can assess the staff knowledge, clinical observational skill, how they handle and manage this kind of patient.

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