



Emergency Medicine

RAPID RECOGNITION TIMELY ACTION : OPTIMIZING DELIRIUM CARE IN THE ED

Vishwa Reddy Gankidi*	Associate Professor -Department of Emergency Medicine, Apollo Institute of Medical Sciences and Research –(AIMSR) Hyderabad, Telangana. *Corresponding Author
Nagender Devulapally	Professor -Department of General Medicine, Apollo Institute of Medical Sciences and Research –(AIMSR) Hyderabad, Telangana.
Ashok Alimchandani	Professor -Department of Psychiatry, Apollo Institute of Medical Sciences and Research –(AIMSR) Hyderabad, Telangana.

ABSTRACT **Background:** Delirium is an ictal, symptomatic, heterogeneous and acute neurocognitive syndrome, characterized by delirium attentional, consciousness and cognitive dysfunction. It frequently occurs in vulnerable populations, with particularly older adults, and is associated with prolonged hospital stays, higher healthcare costs and increased mortality rates. Although clinically important, delirium is unidentified, a fact compounded in the ED when the rapid and stressful emergency room milieu makes identification difficult. The incidence of delirium in emergency department (ED) settings is heterogeneous in elderly patients, but unfortunately it is often underrated or attributed to other diseases such as dementia, psychiatric and substance use disorders. Early detection of delirium in the ED is of immense significance as it enables early management and intervention that can prevent comorbid long-lasting cognitive decline, functional disability and readmissions. However, standard delirium screening is routinely neglected due to competing priorities, lack of awareness and standardized protocols in the emergency settings. **Aims And Objectives:** This study intends to build upon existing evidence in assessing the utility of DTS screening tools and 4AT scores to identify delirium in the ED population and design a protocol for approach and management in the ED. The study also examines significant patient and system level outcome measures that are associated with delirium, with the aim of discovering potential opportunities for standardization of detection, diagnosis, treatment and management considerations in the ED. **Methods:** A pilot study was conducted recruiting 300 patients of age greater than 65 years over a period of one year. All patient underwent delirium screening using 4AT and DTS tools and subsequently history taking, diagnosis and treatment was done in the ED as per the protocol. **Results:** The prevalence of delirium was found to be 26 percent and a total of 87 (29%) of patients were identified to have delirium in the ED by using screening tools. Factors associated with delirium include older age, conditions like sepsis, and polypharmacy. The screening tools were found to have 89% sensitivity and a specificity of 76% in the delirium detection that lends support to its viability and practicality in the ED context. **Conclusion:** The study findings show the utility of routine delirium screening and early treatment of patients would improve patient satisfaction and reduce healthcare disparities. This research study would also offer statistical endorsement for expanding the application and adaptation of currently used screening tools and diagnostic approach to delirium in emergency department. **Pearls:** This work is intended to address the gap between science and clinical practice, which is then expected to increase the quality of patient care and lead to recommendations for evidence-based interventions in regards to delirium, at the emergency level.

KEYWORDS : DTS – Delirium Triage Screen, ED – Emergency Department, 4AT Score – 4A's Test Score

INTRODUCTION:

Delirium is a prevalent acute neuropsychiatric condition marked by disruptions in attention, awareness, and cognitive function. It is particularly common among older adults in emergency departments (ED), yet it is often underdiagnosed due to its variable presentation, subtle symptoms, and similarities with other disorders like dementia and psychiatric conditions.⁽⁴⁾ The ED plays a vital role in the early identification of delirium, as it is the first point of contact for patients who may have various medical or environmental risk factors contributing to the syndrome. If delirium goes unrecognized, it can result in delays in treatment for the underlying causes, extended hospital stays, increased morbidity, and higher mortality rates. In contrast, timely detection enables swift interventions that can enhance patient outcomes and prevent further complications.^(5,6)

Under diagnosing delirium can result in increased mortality, cognitive decline, longer hospital stays, greater need for institutional care, worsening of existing conditions, and additional complications during hospitalization. These factors underscore the necessity for improved recognition and management of delirium in clinical settings.⁽⁸⁾

To enhance delirium detection in the ED, healthcare professionals should implement a systematic strategy that includes using validated screening tools, conducting comprehensive clinical assessments, and being mindful of populations at higher risk.⁽⁹⁾ By adopting these practices, healthcare providers can ensure early identification of delirium, facilitating prompt management and improved patient outcomes. Despite ER physicians' training in pattern recognition, an efficient and dependable method for diagnosing acute delirium in the ED remains elusive.^(9,10)

As ER physicians having been trained in pattern recognition, an efficient and reliable method to diagnose acute delirium in the ED is yet lacking.

Aims And Objectives:

- This study intends to build upon existing evidence in assessing the utility of DTS screening tools and 4AT scores to identify delirium in the ED population and design a protocol for approach and management in the ED.
- The study also examines significant patient and system level outcome measures that are associated with delirium, with the aim of discovering potential opportunities for standardization of detection, diagnosis, treatment and management considerations in the ED.

Methods:

The National Institute of Clinical Excellence (NICE) ED delirium screening tool was used to screen all the patients (age > 65 yrs) admitted through the emergency department, screening and noting the symptoms suggestive of delirium, vital parameters of the patient, clinical condition of patient including cognitive and behavioural changes, record of pre existing psychiatric illness, provisional diagnosis and interventions implemented in the ED were recorded by a medical doctor. The assessment tools used include DTS, 4AT, CAM were useful in screening and detection of delirium in the ED, subsequently as per the history noted the patients diagnosed to have delirium were notified to medical and psychiatric departments and factors associated with and contributing to the illness were noted, subsequently complete diagnosis, treatment of the patients was done. The data collected was analysed and statistical analysis was done using SPSS24 version software and protocol for the approach and management of delirium was formulated.

RESULTS:

As per the study results out of the total (n=300) patients screened for delirium majority (72%) 216 of them were males and (28%) 84 were females and the prevalence of delirium was found to be 26 percent and a total of 87 (29%) of patients were identified to have delirium in the

ED by using screening tools patients. Factors associated with delirium include older age, conditions like sepsis and polypharmacy .The screening tools were found to have 89% sensitivity and a specificity of 76% in the delirium detection that lends support to its viability and practicality in the ED context. The terms altered sensorium, disoriented , confused and drowsy were used to describe delirium as per the records .^(6,10)

DISCUSSION:

To define the term delirium refers to an acute disturbance of the consciousness or cognition that fluctuates in severity.

The DSM - V identifies 5 important features that aid in the diagnosis of delirium :

- Disturbance in awareness and attention .
- Develops over a short period of time , represents a change from baseline , and tends to fluctuate during the course of the day .
- An additional disturbance in cognition
- The disturbances are not better explained by another pre existing , evolving or established neurocognitive disorder .
- There is evidence that the disturbance is caused by a medical condition , substance intoxication or withdrawal or side effect of medication .

Why is it important to know about these confused elderly patients ?

As across the globe the prevalence rates of delirium are more in elderly patients and have always relied on DSM-IV criteria and it was found that 16 to 68 .1 % variation in prevalence rate was noted in ICU's as per various studies (Grover et al -2018) . Studies have also reported mortality rates for inpatient admissions with delirium varied from 6.6 to 30.8 % and comparison studies report that patients with delirium have a higher morbidity and mortality and longer duration of hospital stay^(2,7) .

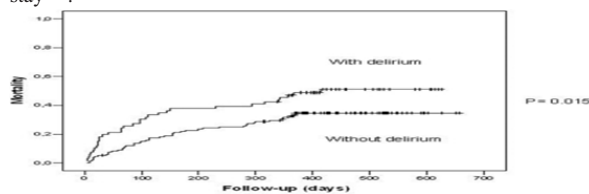


Fig 1: Mortality Risk Associated With Delirium

The following are the consequences of Delirium in brief :

Increased Mortality , almost 25% more chances of death with delirium in hospitalized patients.^(2,5) Increased Morbidity -adjusted risk of death – twice as compared to delirious controls (Inouye et. al, 1998), Poor functional recovery ,possible future cognitive decline ,increased risk of complications ,increased nursing home placement ,increased costs and LOST ,depression, PTSD are some of the possible consequences secondary to delirium .^(6,7)

Acute confusional state can be the presentation of many life threatening disease conditions in the emergency department like hypoxia ,sepsis , metabolic derangements , drug intoxication , and multi organ dysfunction, Fig: 2 describes the pathophysiology of delirium.

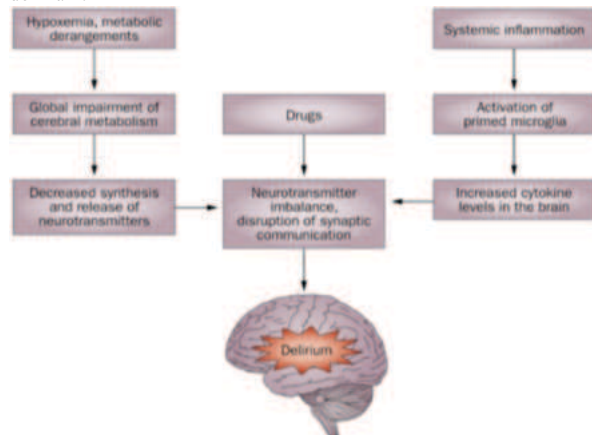


Fig 2 : Relationships between Etiological Factors and Pathophysiology of Delirium

The diagnosis of delirium itself signifies the morbidity beyond the range of reflection of underlying disease condition directly contributing to it .As per one study 8-17% of elderly patients presenting to the ED have delirium. Despite the remarkable danger associated with it ,this significantly morbid condition is missed in the ED and emergency physicians are un prepared and delirium remains a missed diagnosis in many situations due to lack of existence proper screening tools and assessment methods in the existing emergency department systems of care at various tertiary care hospitals .^(6,7)

APPROACH TO A PATIENT WITH DELIRIUM IN THE ED !

All Older Adults (age >65)presenting to ED :

Screen for delirium using 4AT/ DTS at triage or first contact after triage^(1,7,10)

Table 1 : DTS Score And Its Components

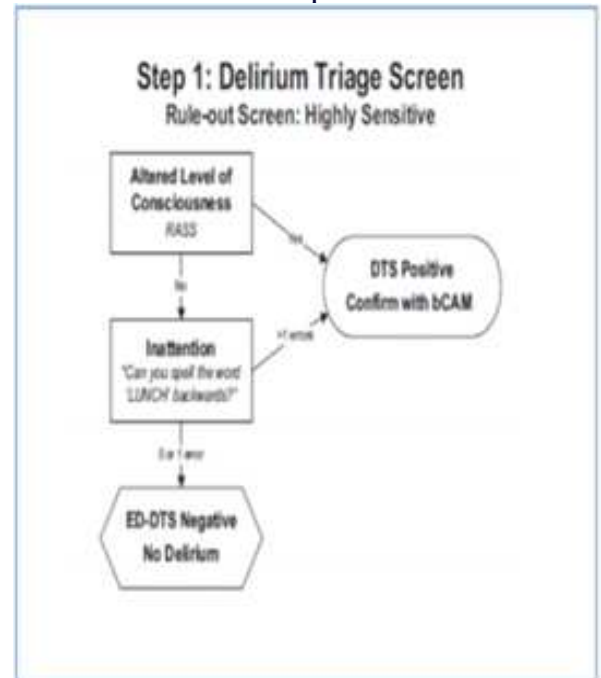


Table 2 : 4AT Score And Its Components

Step 1 :4AT Rapid Clinical Test for Delirium	
1. Alertness	Score
Normal (fully alert, but not agitated throughout assessment)	0
Mild sleepiness for <10 seconds after waking but then normal	0
Clearly abnormal	4
2. AMT4 (Age, date of birth, place (name of hospital), current year)	
No mistakes	0
1 mistake	1
2 mistakes	1
3. Attention (months of year backwards)	
Achieves 7 months or more correctly	0
Starts but scores <7	1
Unstable (too unwell, drowsy, inattentive)	2
4. Acute Change or Fluctuating Symptoms (need collateral history)	
No	0
Yes	4

(Result of 4AT (Collateral history necessary))

4 : Probable delirium +/- cognitive impairment ; 1-3 : Possible cognitive Impairment ; 0 : Delirium or severe cognitive impairment unlikely⁽¹⁰⁾

No evidence of delirium (4AT 0-3)/DTS -Negative

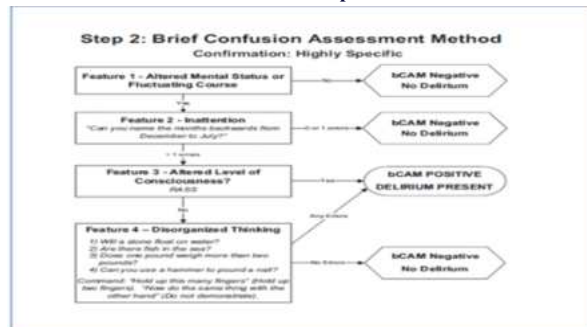
Proceed with admission/discharge , If 4AT score is 1-3: ensure documentation of cognitive status. **Person may have undiagnosed dementia** , See reverse side for dementia/ cognitive vulnerability pathway for ED ,assess for delirium risks: those with any risk factors should have regular screening for delirium^(7,10).

Suspected Delirium (4AT- 4) / DTS-Positive

This is to be considered as a medical emergency - **Flag for Urgent Medical Review**

Discuss diagnosis with senior doctor in the ED ,Confirm with modified Confusional assessment Scale ,Discuss diagnosis with carer/ relative and patient as appropriate, Assess for possible causes of delirium^(8,10)

Table :111 BCAM Score and its Components



Step 3 : Ensure Admitting Team Know That Delirium Is Suspected Delirium has a high mortality, most patients will need admission. Only discharge after discussion with a senior colleague.^(6,10)

Step 4 : Assess For Potential Causes Of Delirium

Assessment for presence of pain ,Exclusion of Urinary retention
Infection: Assessment for a possible source of infection ,Constipation: Checking last bowel movement Hydration/nutrition: Ruling out major electrolyte imbalance, Checking for hypoxia, hypotension, hypoglycaemia, Medication: omission of regular medication or addition of new medication ,Environment: change of environment, noise or activity levels impacting sleep/rest.^(1,6,10)

Table 4 : Differential Diagnosis For Varied Presentations Of Delirium

Potential causes	Differential diagnosis
Hypoxia	Hypotension , Acute hypoxia, chronic lung disease .
Environmental	Endocrinopathies, diabetes, adrenal, thyroid ,Hypo/hyperthermia.
Acute vascular	Subarachnoid haemorrhage, Hypertensive emergency, sagittal vein thrombosis.
Toxins/drugs	Alcohols, pesticides , Medications, street drugs, industrial poisons, carbon monoxide, cyanide, solvents, etc.
Heavy metals	Mercury , Lead
Infections	Meningitis , Sepsis, encephalitis, syphilitic central nervous system abscess
Trauma	Head, burns
Withdrawal	Sedative-hypnotics, Alcohol, barbiturates.
Acute Metabolic	Electrolyte disturbance , Acidosis, other metabolic disturbances (glucose, magnesium, calcium), hepatic/renal failure.
Deficiencies	Vitamin B12, niacin , thiamine, hypovitaminosis.
CNS diseases	Haemorrhage, vasculitis, seizures, tumour , cerebrovascular accident

STEP 5 : Managing a patient with delirium who is distressed and/or combative

The management of delirium is primarily NON PHARMACOLOGICAL.

ALWAYS try to de-escalate the situation first. Explain what is happening, re orientate, try to nurse in a quiet area, consider need for one to one care.^(1,7,10)

1. The evidence for the benefit of antipsychotics in treating delirium is very weak. If emergency treatment with medication is needed because the patient or others are at immediate risk and/or urgent care is compromised, low dose ORAL antipsychotic

medication is preferred. Small doses should be given e.g. Haloperidol (0.5 - 1mg), Quetiapine (12.5 - 25mg), Olanzapine (2.5mg), Risperidone (0.5mg)

Avoid antipsychotics in those with Lewy body dementia or Parkinson's disease and

Get an ECG and check QTc before using antipsychotic agents.

2. Benzodiazepines worsen delirium and are reserved for alcohol or benzodiazepine withdrawal (follow withdrawal protocols); or where emergency treatment is required (as per 1, but antipsychotics are contraindicated: e.g. consider lorazepam (0.5-1mg).

3. A decision to use IM or IV sedation must be made by a senior doctor (i.e. Registrar/ Consultant). This should be administered in an area where the patient can be properly monitored and where airway support is available. Flumazenil should be available if using lorazepam. Procyclidine/ Benztropine should be available if using antipsychotic agents.^(8,10)

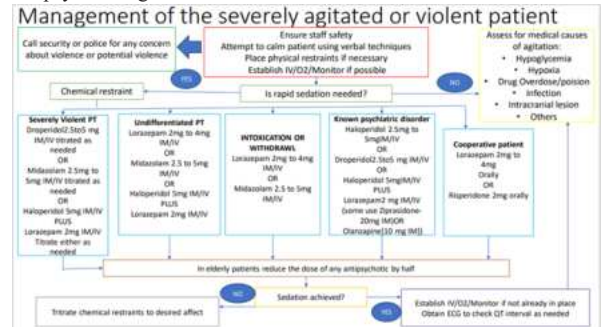


Fig 3 : Algorithm for the ED management of Delirium in an Agitated patient

Step 6 : Strategies For Delirium Prevention

Avoid new sedatives and restraint (physical and chemical) ,Avoid use of urinary catheters where possible ,Ensure adequate fluids/nutrition and access to drinks/snacks

Avoid constipation ,Promote relaxation and sufficient sleep in a quiet area ,Encourage and assist early and regular mobilisation ,Provide own hearing aids and glasses ,Encourage/ allow family members/ carers to stay with the patient ,Encourage independence with activities of daily living (toileting/washing) ,Assess for and manage any pain; use dementia friendly pain score where applicable ,Medication review .^(8,10)

CONCLUSION:

- Delirium is still under-recognized and poorly managed in the ED. Knowledge about early recognition of delirium in the older adults, its approach and timely diagnosis would aid in improving the health care outcomes. Delirium is often the presenting symptom of an underlying medical condition and a broad differentials should be considered .
- Management involves maximization of medical condition while minimization of polypharmacy Reforming and implementing appropriate management practices in the ED are vital to reinforce and strengthen quality of care at the tertiary care hospital level^(1,10) .

REFERENCES

- Current Emergency and Hospital Medicine Reports(2021)9: 11-18 .
- Gower, Lynn, et al. "Emergency Department Management of Delirium in the Elderly." *Western Journal of Emergency Medicine*, vol. 13, no. 2 Jan. 2013, pp. 194-201.
- Grossmann, Florian F. et al. "Screening, detection and management of delirium in the emergency department – a pilot study on the feasibility of a new algorithm for use in older emergency department patients: the modified Confusion Assessment Method for the Emergency Department (MCAM-ED)." *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, vol. 22, no. 1, 2014, p. 19.
- Geriatric Emergency Department Guidelines. (2014). *Annals of Emergency Medicine*, 63(5). doi:10.1016/j.annemergmed.2014.02.008 .
- Han, Jin H., et al. "Delirium in the Older Emergency Department Patient: A Quiet Epidemic." *Emergency Medicine Clinics of North America*, vol. 28, no. 3, 2010, pp. 611-631.
- Inouye, Sharon K, et al. "Delirium in elderly people" *The Lancet*, vol. 383, no. 9934, 2014, pp. 911-922.
- Inouye SK. The Confusion Assessment Method (CAM): Training Manual and Coding Guide. 2003; New Haven: Yale University School of Medicine.
- Lewis LM et al. "Unrecognized delirium in ED geriatric patients." *American Journal of Emergency Medicine*. vol. 13, 1995, pp. 142-45.
- Monette, Johanne, et al. "Evaluation of the confusion assessment method (CAM) as a screening tool for delirium in the emergency room." *General Hospital Psychiatry*, vol. 23, no. 1, 2001, pp. 20-25.
- Delirium : NICE Clinical Guideline (July 2010). <http://guidance.nice.org.uk/CG103>. Reviewed 2015 without updates added.