

# ژورنال کلاب بیمارستان ضیائیان

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# **CLINICAL PRACTICE GUIDELINES FOR MANAGEMENT OF DELIRIUM IN ELDERLY**

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# INTRODUCTION

- Delirium is **an acute, transient, usually reversible** neuropsychiatric syndrome, seen in medical-surgical set-ups
- Elderly considered to be a high-risk group for delirium.
- Delirium is not detected or detection is **delayed**.
- Associated with negative outcomes : prolonged hospital stay, need for institutional care, poor functionality and high treatment costs.
- Also associated with high short-term and long-term mortality.

# INTRODUCTION

- Long-term consequences of delirium: cognitive decline and development of dementia.
- For these guidelines using search engines of PUBMED, Embase and Google Scholar to find out the available evidence based literature .
- Available treatment guidelines were also reviewed for formulation of the guidelines.

# EPIDEMIOLOGY OF DELIRIUM

- Incidence rate of 3 to 42% in hospitalized patients
- Prevalence to vary from 5 to 44% amongst the hospitalized patients.
- Studies evaluating patients in the emergency department, suggest that about 40% of patients have delirium.

## DSM-5 CRITERIA FOR DELIRIUM

- A. A disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and awareness (reduced orientation to the environment).
- B. The disturbance develops over a short period of time (usually hours to a few days), represents a change from baseline attention and awareness, and tends to fluctuate in severity during the course of a day.
- C. An additional disturbance in cognition (e.g. memory deficit, disorientation, language, visuospatial ability, or perception).
- D. The disturbances in Criteria A and C are not better explained by a pre-existing, established or evolving neurocognitive disorder and do not occur in the context of a severely reduced level of arousal, such as coma.
- E. There is evidence from the history, physical examination or laboratory findings that the disturbance is a direct physiological consequence of another medical condition, substance intoxication or withdrawal, or exposure to a toxin, or is due to multiple etiologies.

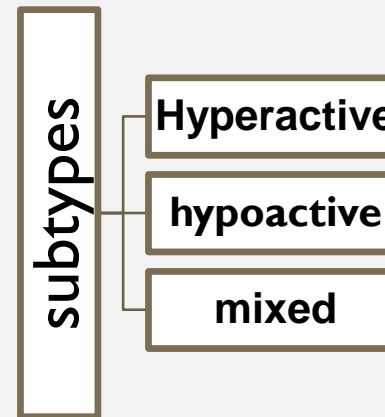
# CLINICAL FEATURES OF DELIRIUM

- It is characterised by an **acute onset** of symptoms, with a **fluctuating** course.
- The symptoms of delirium are broadly divided into **cognitive**, **non-cognitive** and **motoric** symptoms.
- **Cognitive symptoms:** disturbances in attention, memory, orientation, comprehension, vigilance, visuo-spatial abilities and executive functioning.

# CLINICAL FEATURES OF DELIRIUM

- **Non-cognitive symptoms:** disturbances in the sleep wake cycle, speech and language disturbances, affective lability, perceptual abnormalities (hallucinations, illusions etc.) and delusions.
- **Motoric symptoms:** an increase or decrease in the psychomotor activity.

- Based on the psychomotor activity





# RISK FACTORS/ETIOLOGY FOR DELIRIUM

**Socio-demographic variables:** age > 70 years/ advanced age, male gender, institutionalization,

**Baseline Mental Status:** cognitive impairment/ dementia, depression, social isolation

**Past History:** previous history of delirium

**Sensory impairment:** vision and/or hearing impairment

**Medical Illnesses:** severe medical illness, high APACHE II score, fracture at admission to the hospital, brain disorders like Parkinson's disease, tumors, Infections

**Physical Status:** fever, hypotension, poor functionality/immobility, limited pre-morbid activity levels

**Metabolic disturbances:** electrolyte imbalance, anaemia, acid base imbalance, hypoglycaemia

## **Medications**

**Sedative-hypnotics:** benzodiazepines; especially long acting agents, barbiturates, Antihistamines (e.g., diphenhydramine)

**Narcotics:** Meperidine

**Drugs with anticholinergic effects:** Oxybutynin, Tolterodine, Antihistamines, Antipsychotics (e.g., low potency neuroleptics such as chlorpromazine), Promotility agents, Tricyclic antidepressants (especially amitriptyline, imipramine and doxepin), Cumulative effect of multiple medications with anticholinergic effects

**Histamine-2 Blocking agents:** Cimetidine

**Anticonvulsants:** Phenytoin, Phenobarbitone

**Antiparkinsonian medications:** Dopamine agonists, Levodopa-carbidopa, Amantadine, Anticholinergics, Bzotropine

**Use of more than 3 medications**

**Laboratory Findings:** High urea/creatinine ratio, Hypo/Hypernatremia, Hypo/hyperkalaemia, Hypoxia, hepatic failure

**Surgery and Anaesthesia:** Unplanned (i.e., emergency) surgery, Immobility after surgery, preoperative use of narcotic analgesics, type of surgery (hip replacement surgery, neurosurgery), emergency surgery, longer duration of surgery, type of anaesthetic, postoperative pain, intraoperative blood loss

**Pain:** poor pain management

**Nutrition:** Malnutrition, dehydration, hypoalbuminemia

**Treatment related factors:** use of physical restraints, indwelling Cather, more number of procedures including investigations during early hospitalization (X-rays, blood tests etc.)

**Sleep:** sleep deprivation/insomnia

**Treatment setting:** Intensive care units, longer duration of hospital stay

**Others:** Alcohol abuse, Urgent hospitalization, frequent hospitalizations

# DIFFERENTIAL DIAGNOSIS

- Includes **dementia**, **depression** and **psychosis/schizophrenia**.
- Delirium is characterised by an acute onset of illness; in contrast, dementia usually has an insidious onset.
- The cognitive symptoms in dementia manifest in the absence of an altered level of consciousness, whereas delirium is often characterized by an altered level of consciousness.
- Dementia usually follows a downhill course, whereas delirium is often reversible.

# ASSESSMENT SCALES FOR DELIRIUM

## Confusion Assessment Method for the ICU (CAM-ICU) Flowsheet

### 1. Acute Change or Fluctuating Course of Mental Status:

- Is there an acute change from mental status baseline? OR
- Has the patient's mental status fluctuated during the past 24 hours?

NO →

**CAM-ICU negative  
NO DELIRIUM**

YES ↓

### 2. Inattention:

- "Squeeze my hand when I say the letter 'A'."  
Read the following sequence of letters:  
SAVEAHAART or CASABLANCA or ABADBADAAY  
ERRORS: No squeeze with 'A' & Squeeze on letter other than 'A'
- If unable to complete Letters → Pictures

0 - 2  
Errors →

**CAM-ICU negative  
NO DELIRIUM**

> 2 Errors ↓

### 3. Altered Level of Consciousness Current RASS level

RASS other  
than zero →

**CAM-ICU positive  
DELIRIUM Present**

RASS = zero ↓

### 4. Disorganized Thinking:

1. Will a stone float on water?
2. Are there fish in the sea?
3. Does one pound weigh more than two?
4. Can you use a hammer to pound a nail?

Command: "Hold up this many fingers" (Hold up 2 fingers)  
"Now do the same thing with the other hand" (Do not demonstrate)  
OR "Add one more finger" (If patient unable to move both arms)

> 1 Error →

**CAM-ICU positive  
DELIRIUM Present**

0 - 1  
Error →

**CAM-ICU negative  
NO DELIRIUM**



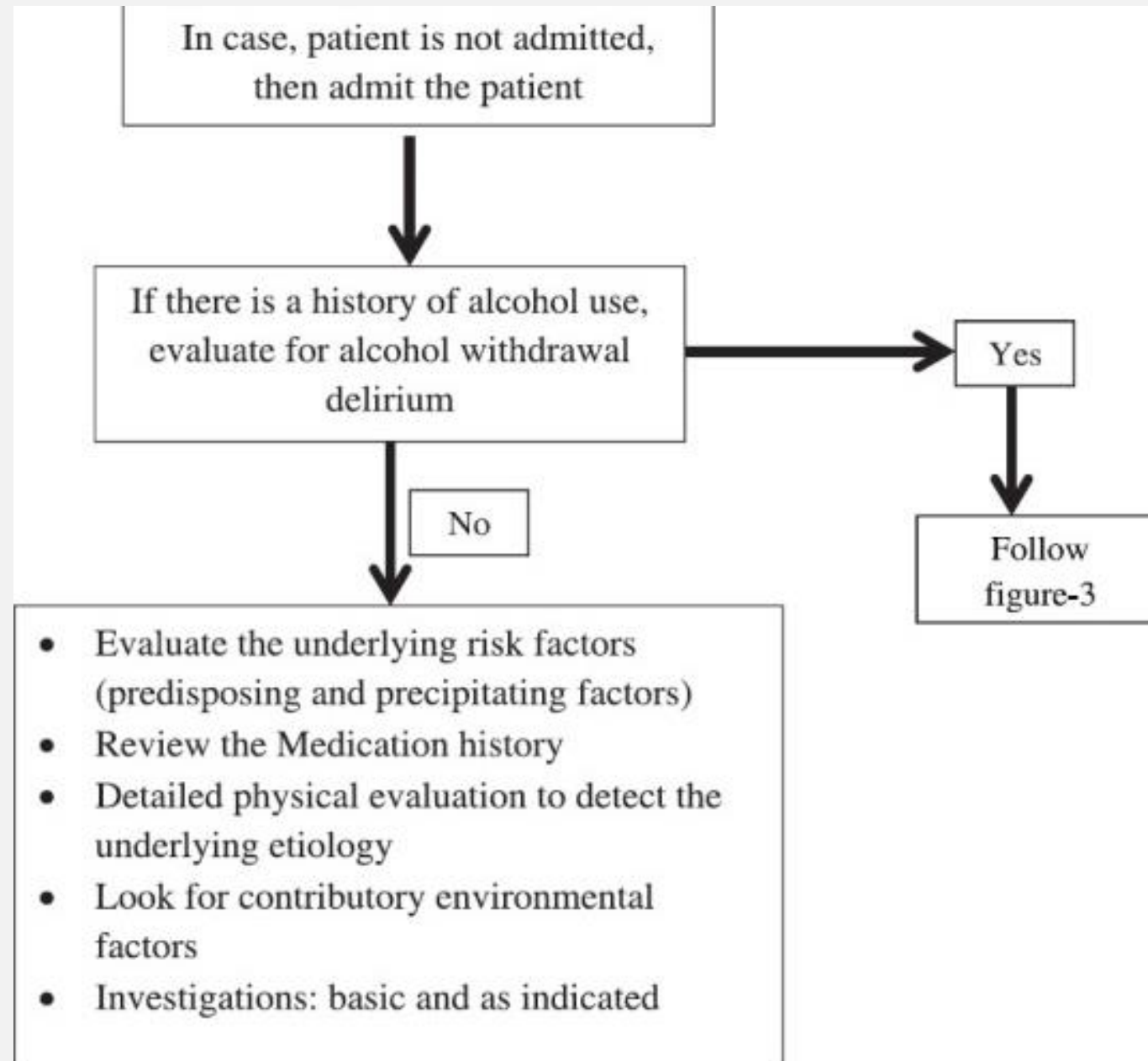
# ASSESSMENT OF PATIENTS WITH DELIRIUM

Elderly patient exhibiting behavioural and cognitive disturbances

- Uncooperative for assessment
- Agitation, pulling out tubings
- Sleep disturbances
- Poor attention and concentration
- Not responding to verbal commands

**Screen for delirium**

Confirm the diagnosis of delirium  
by using standard diagnostic criteria



# GENERAL PRINCIPLES FOR ASSESSMENT OF CAUSE OF DELIRIUM

## Baseline evaluation of patient

- Confirm the diagnosis of delirium by using standard diagnostic criteria
- Rate the severity of delirium, subtype the delirium
- Evaluate the risk of harm to self or others
- Evaluate the onset and the course of symptoms
- Evaluate the underlying medical illnesses- both acute and chronic
- Look for information about recent procedures- surgery, drainage etc
- Alcohol and other substance use pattern- last intake, relationship with onset of symptoms of delirium
- Psychiatric comorbidity
- Previous level cognitive functioning
- Past history of delirium and response to treatment
- Level of functioning (i.e., basic and instrumental activities of daily living)
- Psychosocial history- social isolation
- Look for symptoms which can indicate the possible cause (fever suggestive of infection)
- Sensory impairment/deprivation
- Physical restraints, urinary Cather etc
- Sleeping pattern- duration of sleep, diurnal pattern of sleep
- Functioning of bladder and bowel – constipation, impaction of faecal material
- Dietary and fluid intake



### **Review of Medications**

- Review the medication history- total number of drugs, type of drugs, over the counter use of drugs, use of drugs from alternative medicine, any recent change (addition or deletion) of drugs and their association with emergence of symptoms of delirium
- Review the anaesthesia records in post-operative patients

### **Baseline Physical Examination**

- Thorough physical examination from head to toe
- Neurological examination- evaluate the level of consciousness
- Review the vital signs in postoperative patients – look for hypertension, hypotension
- Hydration status and nutritional status
- Signs and symptoms of local or systemic infection- fever, crepitations in the chest etc
- Look for signs and symptoms of alcohol withdrawal/intoxication or those related to other substances

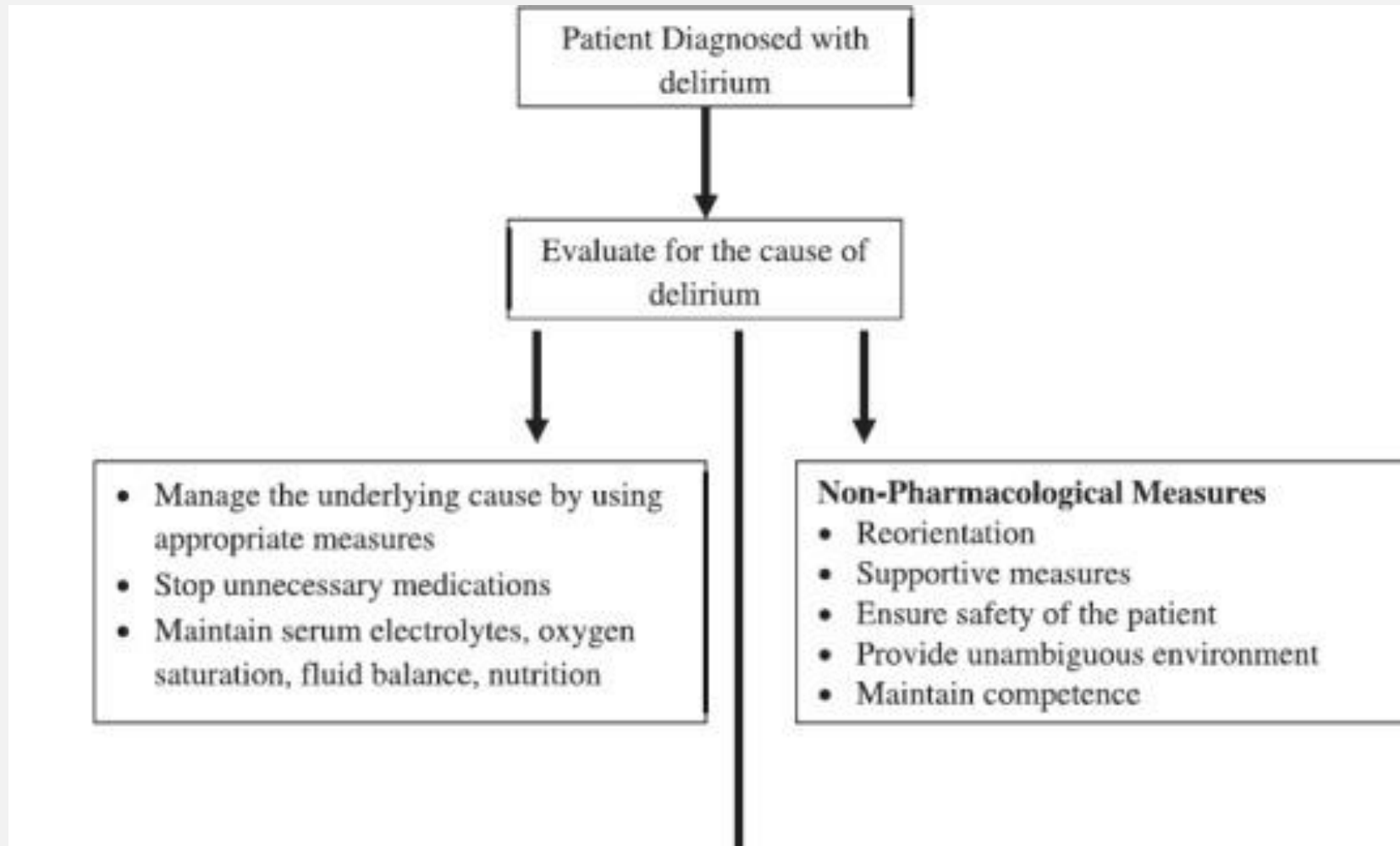
### **Baseline evaluation of the Environment**

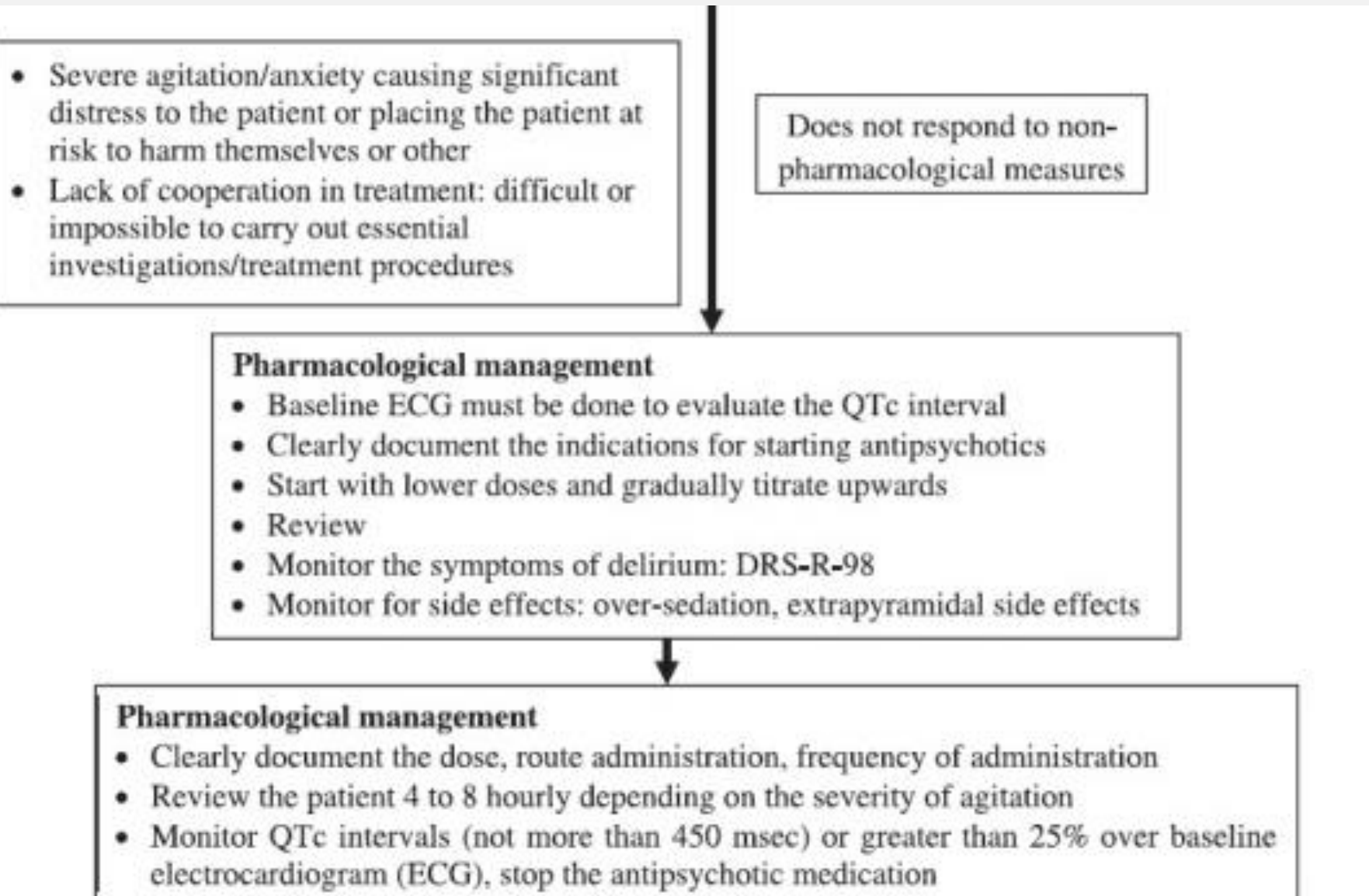
- Sensory deprivation or overload (example, too much noise, beeps etc)
- Changes around: frequent change of rooms, frequent change of staff,
- Involvement of the family- isolation from family
- Familiarity with the surroundings
- Presence or absence of calendars, clock etc)

## Basic Investigations

- Serum electrolytes- sodium, potassium, calcium, magnesium
- Haemogram
- Renal function test- urea, creatinine
- Liver function test- Alkaline phosphatase, alanine aminotransferase (ALT), Aspartate aminotransferase (AST)
- Blood glucose levels
- Thyroid function test
- Arterial blood gas (ABG) analysis
- Urine analysis- routine, culture
- X-ray Chest
- Electrocardiogram (ECG)
- If indicated than consider urine drug screen, blood cultures, serum level of medications, computerized tomography (CT) or magnetic resonance imaging (MRI)
- If indicated consider Electroencephalogram (EEG): can help in distinguishing delirium from dementia, when delirium is thought to be associated with status epilepticus, partial complex seizures, can help to distinguish hypoactive delirium from depression
- Lumbar puncture if meningitis is suspected

# MANAGEMENT OF DELIRIUM





## EDUCATE THE FAMILY ABOUT DELIRIUM

- Explain the family members that the symptoms are due to underlying organic cause
- Explain that the symptoms are transitory and will subside in short duration
- Explain family members about their role in management of delirium

# NON-PHARMACOLOGICAL MANAGEMENT

- There are limited numbers of (RCTs), which have evaluated non-pharmacological interventions.
- Findings from various RCTs suggest that systematic detection and multidisciplinary care do not appear to be superior than usual care provided to elderly patients admitted to medical services.
- These studies been criticised for the limitations in the form of a contamination effect, i.e., patients in both the intervention arms were managed in the same units by the same staff.



## **Providing support and orientation**

- **Communication:** use simple language, communicate in clear, simple, firm, slow-paced language and if require repeat the instruction
- **Avoid abstract ideas/language**
- **Avoid discussion which cannot be appreciated by the patient**
- **Discuss topics which the person with delirium is interested in talking, is familiar with such as his hobbies and profession**
- **Reorientation:** reorient the patient (repeated reminders for the day, time and location, and identity of key individuals including treating team members)
- **Address the patient face-to-face, make proper eye contact, and give clear instructions when talking to patients**
- **Convey an attitude of warmth, calmness and kind firmness**
- **Understand the persons emotional state and encourage them to speak**
- **Do not try to provide too much of information at one go and when patient is not interested**
- **Clear markers/signs for patient's location**
- **Provision for calendar, clock, chart with the day's schedule in the patients room**
- **Avoid multitasking: provide one stimulus/task at a given time**
- **Bring familiar belonging from the home: personal/familiar objects (Photos, favorite blanket), night clothes, things kept at bedside in the home to enhance orientation and security**

- If interested, patient may be encouraged to carry out cognitively stimulating activities: many times a day (puzzle books, Sudoku, magazines, or video games etc.)
- Minimize change of staff
- Use a television/radio/smartphones/listening to music etc. for relaxation can be allowed if the person wants the same, as these can help the patient maintain contact with the outside world; light music can prevent under stimulation and also provide a buffer against noise extremes
- Physical restraints to be kept away, if possible; when used should be for shortest possible duration and be removed in timely manner
- Encourage feelings of security and orientation by involving family members/caregivers
- Explain about each procedure or the act being done as part of treatment or general care (for example changing the bed sheet), to reduce the chances of misinterpretation
- Position your hands in the field of the vision and avoid rapid movements or gestures, which could be misinterpreted as signs to harm
- In case patient gets agitated, look for the triggers and use behavioural strategies (change in the environment, distraction) to reduce agitation
- Do not contradict the delusional beliefs- this can enhance the agitation and encourage disorientation
- Do not confront and disagree with the patient, even if the patient verbalizes inappropriate or inaccurate things
- Avoid having more than one patient with delirium in the same room, especially persons with agitated hyperactive delirium, as agitation of one patient reinforces/induces the agitation in the second patient



### **Providing an unambiguous environment**

- Remove harmful and unfamiliar objects from the vicinity
- Avoid both sensory deprivation (provide glasses and hearing aids, if patient was using the same) and sensory overload (noise)
- Do away with unnecessary objects in the care area, maintain adequate space between beds
- If the provision exist or it is possible that, provide single room: will help in providing rest and lead to avoidance of extremes of sensory experience; this can also eliminate the disturbance caused by staff/family caregivers of other patients in the same room
- Frequent change of location of patient's bed should not be done
- Do not use medical jargon in front of the patient as this can enhance the feelings of paranoia
- Adequate lighting: appropriate lighting to the time of day and minimal lighting at night may reduce disorientation (40–60 W night light reduces misperceptions)
- Quiet environment, reduce noise (keep phones in the silent/vibrator mode, use vibrating beepers, reduce the noise from staff, equipment, visitors to the minimum with a aim of <45 decibels during the daytime and <20 decibels at night)
- Room temperature to be maintained between 21°C and 23.8°C
- Encourage family members to stay with the patient- can help in reorientation, provide a sense of safety, help in effective communication
- Educate the family about how to communicate

## **Maintaining competence**

- Recognise and correct sensory impairments: make sure that patients have their glasses, hearing aids and dentures
- Check whether patient understands your language or an interpreter is required; if so use an interpreter
- Early mobilization: Ambulate at the earliest, if this is not possible than encourage whole range of movements for at least 15 minutes three times a day
- Encourage independence in self-care activities
- Encourage participation in treatment (for example, encourage the patient to give feedback about their pain)
- Ensure good uninterrupted sleep: schedule treatment/interventions/ Intravenous fluids in such a way that patient can have maximum periods of uninterrupted sleep (use a sleep protocol to promote quiet hours)
- Address the issues related to nutrition
- Do away with urinary catheter, central line, Intravenous fluid line etc at the earliest
- Adequate skin care and avoid development of bed sores
- Proper measures to be taken to prevent falls

### **Other supportive measures**

- Maintain adequate oxygen saturation, correct electrolyte imbalance
- Adequate pain management: use non-pharmacological measures, local measures, in case of severe pain use appropriate analgesics (preferable non-narcotic agents) round the clock
- Unnecessary medications to be discontinued
- Treat infection: antibiotics
- Ensure regular bowel/bladder habits: avoid constipation
- Prevention, detection, management of major postoperative complications

### **Educate the Staff**

- How to recognise and monitor the symptoms of delirium
- How to provide reorientation cues

## PHARMACOLOGICAL MANAGEMENT OF DELIRIUM

<b>Antipsychotics</b>	<b>Usual starting dose in patients with delirium</b>	<b>Monitoring</b>
Haloperidol	0.25 to 0.5 mg Bid	Monitor QTc, Extrapyramidal side effect, DRS-R-98, MMSE/HMSE
Olanzapine	1.25 to 2.5 mg OD// Bid	Monitor QTc, Sedation, DRS-R-98, MMSE/HMSE
Risperidone	0.25 to 0.5 mg OD/ Bid	Monitor QTc, Extrapyramidal side effect, DRS-R-98, MMSE/HMSE
Quetiapine	6.25 to 12.5 mg OD/ Bid	Sedation, DRS-R-98, MMSE/HMSE

## GENERAL PRINCIPLES OF USE OF ANTIPSYCHOTICS IN DELIRIUM

- Weigh the benefits and risks of using antipsychotics
- Antipsychotics must be started in liaison with the family/caregivers and members of the primary treating team
- Before starting antipsychotics- baseline ECG must be done to evaluate the QTc interval
- Clearly document the indications for starting antipsychotics
- Use lowest effective dose
- Start with lower doses and gradually titrate upwards
- Monitor the symptoms of delirium
- Monitor for side effects: over-sedation, extrapyramidal side effects
- In general, antipsychotics are not recommended for management of patients with hypoactive delirium

## **DISCHARGE FROM THE HOSPITAL AND FOLLOW-UP**

- Patients with delirium must be kept in the hospital until the delirium resolves.
- Family needs to be explained about the any further management issues and the required monitoring.
- As patients with delirium are at a risk of developing dementia, their cognitive functions must be monitored from time to time.

## PREVENTION OF COMPLICATIONS OF DELIRIUM

- Delirium associated with **secondary complications** like falls, development of bedsores, hospital acquired infections, functional impairment, problems with bladder and bowel control and over sedation.



# ALGORITHM FOR PREVENTION OF DELIRIUM

