Delirium

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Learning Objectives

By the end of the workshop participants will be able to:

➡️ Appreciate the main diagnostic criteria for delirium.
➡️ Describe common causes and main differential diagnoses.
➡️ Describe the immediate and long term impact of delirium on prognosis and outcome.
➡️ List the main risk factors which predispose the elderly to delirium.
➡️ Appreciate the role of pharmacological and non-pharmacological strategies in treatment of delirium.
Definition

“Delirium is a disturbance of consciousness with reduced ability to focus, sustain, or shift attention. It is a change in cognition that occurs over a short period of time and tends to fluctuate over the course of the day.”

(Milisen et al. 2001).
Key Clinical Features

- Altered level of consciousness may include drowsiness, agitation, poor attention span, wandering, disrupted sleep cycles and easy distractibility.

- May see disorientation, memory deficits and hallucinations.

- Motor signs includes agitation, myoclonus, asterixis and “picking at non-existent objects”.

- Usually possible to demonstrate multiple predisposing and precipitating factors.
It is estimated that the prevalence of delirium on admission to hospitals ranges from 10 - 18% and rises to 20 - 40% during hospital stay.

Delirium has been found in 40% of patients admitted to intensive care units.

Prevalence of postoperative delirium following general surgery is 5 - 10% and as high as 42% following orthopedic surgery.

As many as 80% of patients develop delirium near death.
Predisposing Factors

- Dementia is probably the strongest predisposing risk factor, increasing the risk of delirium five-fold (Cole, 2004).

- Inouye (1998) reported that the relative risk of delirium during hospitalization was significantly increased by vision impairment (RR = 3.5), severe illness (RR = 3.5), cognitive impairment (RR=2.8), and high urea / creatinine (RR = 2.0).

- Other predisposing risk factors include dependence in activities of daily living, history of depression, use of anticholinergic medications, and medical co-morbidities (Dolan et al., 2000; Marcantonio et al., 2000).
Precipitating Factors

- Multiple co-existing predisposing and precipitating factors often co-exist!

- Several acronyms have been proposed as aids to identification:
  - I WATCH DEATH, DELIRIUMS.
I WATCH DEATH

- Infection
- Withdrawal (benzodiazepines / alcohol)
- Acute metabolic (fluids/electrolytes)
- Trauma (pain)
- CNS pathology
- Hypoxia
- Deficiencies
- Endocrine
- Acute vascular
- Toxin/Drugs
- Heavy metal
DELIRIUMS

Causes of Delirium

Drugs: [Prescription, OTC, Herbal, Alcohol]
minimize anticholinergic load

Emotional: [Depressed, Mania/Depression] and Environment

Low O² states: [MI, CHF, COPD, Pulmonary Embolus]

Infection: Pulmonary/Urinary/Abdominal/Skin: Deep Decubitus

Retention: Urinary and Feces

Ictal: Seizures

Under: Hydration, Nutrition, Sleep

Metabolic Changes: Blood Sugar, Calcium & Sodium

System Failure: Stroke, Subdural and Stress
Or you can go for the money!

- Drugs, drugs, drugs, drugs
  - (Prescription*, OTC, using someone else’s drugs, Illegal / Alcohol / Withdrawal*)

- Infection
  - Pulmonary*, Urinary*, Skin (PUS)*

- Metabolic*

- Systems – especially cardio / resp*

- Pain including physical discomfort from retention and constipation*
Personal Experience

- Delirious patients post-surgery experienced being “trapped in incomprehensible experiences and turmoil of past, present and here and there, which were all regarded as real, and at the same time as changing and unreal.” (Anderson et al)

- Hospitalized cancer patients with delirium recalled their experience as highly distressing. It was also a highly distressing experience for spouses / caregivers and nurses who were caring for the delirious patients. (Breitbart et al)
Prognosis: Poor

- In patients who are admitted with delirium, mortality rates are 10 - 26%.
- Patients who develop delirium during hospitalization have a mortality rate of 22 - 76%, and a high rate of death during the months following discharge.
- With or without dementia, delirium is an independent predictor of sustained poor cognitive and functional status during the year, after medical admission to hospital.
- Delirium increases the length of stay and likelihood odds of admission to long-term care facilities.
Under-Recognition of its Presence

Inouye states that the rates of unrecognized delirium are as high as 66%.

Specific factors associated with under-recognition include:

- Hypoactive delirium, age 80 years and older, vision impairment, and dementia.
- Failure to appreciate that delirium is a potential medical emergency.
- An ageist attitude that “older patients are expected to get confused”.
- Lack of continuity of care and “standard measures”.
- Failure of care providers to appreciate changes in the presence of co-existing dementia.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
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<tbody>
<tr>
<td>Onset</td>
<td>Sudden</td>
<td>Insidious</td>
</tr>
<tr>
<td>Course over 24 hours</td>
<td>Fluctuating</td>
<td>Stable</td>
</tr>
<tr>
<td>Consciousness</td>
<td>Reduced</td>
<td>Clear</td>
</tr>
<tr>
<td>Attention Span</td>
<td>Globally disordered</td>
<td>Relatively normal</td>
</tr>
<tr>
<td>Cognition</td>
<td>Globally disordered</td>
<td>Global impairment</td>
</tr>
<tr>
<td>Hallucinations</td>
<td>Common</td>
<td>Usually absent</td>
</tr>
<tr>
<td>Psychomotor Activity</td>
<td>Increased or reduced</td>
<td>Often normal</td>
</tr>
<tr>
<td>Speech</td>
<td>Often incoherent</td>
<td>Reduced vocabulary</td>
</tr>
<tr>
<td>Involuntary Movements</td>
<td>Asterixis or tremor common</td>
<td>Often absent</td>
</tr>
</tbody>
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Important Principles re. Clinician’s Approach to Delirium

- Always consider possibility of delirium.
- Often need multiple short assessments over period of time.
- Priority to clarify pre-morbid status and sequence of events.
- Exclude important differential diagnosis (e.g. post-ictal state, language deficit post CVA, depression, psychosis, dementia).
- Identify all predisposing and precipitating factors (often multiple).
Ability to Monitor Crucial

- The Confusion Assessment Method (CAM) is a useful tool for screening for delirium which has a relatively high sensitivity and specificity (Ann Intern Med 1990; 113:941; Arch Intern Med. 1995; 155:301).

Confusion Assessment Method

Acute Change in mental status
   AND
Inattention/fluctuation
   PLUS
Disorganized thinking
   OR
Altered level of consciousness

- Sensitivity 94 - 100%
- Specificity 90 - 95%

Ann Intern Med 1990; 113:941
Arch Intern Med. 1995; 155:301
Office Tests of Attention

- Days of the week backwards
- Months of the year backwards
- Counting backwards from 20
- Random digit span
- Recited list of digits & recognition “Raise your hand everytime I say ‘3’”
- MoCA
Clinician’s Approach to Delirium (Non-Pharmacological)

- Treat all precipitating causes, including pain!
- Optimise physiological status (hydration, nutrition etc.)
- Inform and educate staff and family
- Minimise predisposing factors (lighting, hearing etc.)
- Stabilise environment and re-orientate
- Encourage familiar faces for reassurance e.g. family members
- Low stimulation - avoid excessive noise
- Avoid restraints (physical and chemical)
Clinician’s Approach to Delirium (Pharmacological)

- Avoid physical and chemical restraints if possible.
- Minimise medication use.
- Use sedation only if severely agitated and restless, and real concern of risk.
- Avoid PRN use of medication if possible.
- Use a **SINGLE** medication rather than two to decrease the potential for side effects/drug interactions.
  - Start with a low dose
  - Choose a drug with low anticholinergic activity.
  - Try to stop the medication as soon as possible, focusing on correcting the underlying cause for the delirium.
  - Continue to use Non-Pharmacological Interventions
Canadian Coalition for Seniors Mental Health guidelines on the Assessment and Treatment of Delirium (2006)

- Suggests the use of low doses of Haloperidol (0.25 - 1 mg per dose or 1 - 2 mg per day) for as short a period of time as possible (days) during acute delirium not due to withdrawal from alcohol or benzodiazepine.

- For acute alcohol or benzodiazepine withdrawal delirium, a shorter acting benzodiazepine such as Lorazepam is the recommended choice.

- Limited data on atypical antipsychotic drugs use for the specific treatment of agitation due to delirium. They may be considered as alternate agents in patients who already have Parkinson’s disease or may have Lewy Body Dementia, and for those who have a history of severe side effects with previous use of Haloperidol.

- Cholinesterase inhibitors have been used with variable effect in the literature.
Case Study - Mr. Cecil Fields: Post-Delirium

- 76, farmer, widower for 2 years
- Lives with son (59) who has mild developmental delay
- Potential supports daughter (49) and long-term friend (neighbor)
- PMH HBP, DM, remote depression
- Smoker, Heavy drinker (past)
- Post TURP delirium with prolonged LOS (14 days)
- Pre-admission meds include:
  - Hydrochlorothiazide 25 mg OD, Metformin 500 mg tid, Amitriptyline 50 mg qhs
Case Study – Mr. Cecil Fields: Post-Delirium – cont’d

- Seen in office one month post discharge with daughter (visiting)
- Describes how father was very confused, agitated, verbally abusive and combative in hospital
- Gradually “settled” into pleasantly confused individual
- Family wanted him to “try at home”
- She agreed to stay with her father and brother for first week
- Reports “gradually her Dad returned”
- Still occasional confusion, mainly at night or when tired
- Safety concerns remain, especially about medication use.
Case Study – Mr. Cecil Fields: Post-Delirium – cont’d

- Scores 22 on MMSE losing points on orientation to time and place (1), delayed recall (3), serial 7’s (1), and intersecting figures (1).
- Had a grade 6 education, worked as a farm laborer and handyman.
- Is unable to successfully put the numbers on a clock. He is only able to name more than 4 out of 10 animals and 3 kitchen objects.
- **Pre-admission** meds include:
  - Hydrochlorothiazide 25 mg OD,
    Metformin 500 mg tid,
    Amitriptyline 50 mg qhs
- **Post-admission** meds include:
  - Hydrochlorothiazide 25 mg OD,
    Metformin 850 mg tid, Oxazepam 15 – 30 mg qhs, Tylenol #2’s PRN
Issues to Consider

⇒ Residual Delirium?
⇒ Potential contributory factors:
  ▪ Medications (Oxazepam, Tylenol #2’s)
  ▪ DM control (Metformin increase plus dietary)
⇒ Action and monitoring?
  ▪ Review need for new medications:
    • Oxazepam, Tylenol #2’s
    • Metformin dose
  ▪ MoCA (19) - problems with trail test, clock, attention, serial 7’s, delayed recall, orientation
Case Study – Mr. Cecil Fields: 
Post-Delirium – cont’d

- Seen in office two months post discharge with daughter
- Reports back to baseline
- Scores 25 on MoCA (loses 1 on Trail test, 1 on serial 7’s and 3 delayed recall)
- Meds now include:
  - Hydrochlorothiazide 25 mg OD, Metformin 850 mg tid
- Possible diagnosis of MCI
- Review vascular risk factors
  - Counsel re. smoking
  - Anti-hypertensive choice
Your Take Home Tool Kit Includes

- Confusion Assessment Method
- Information Pamphlet for Caregiver
- Information Pamphlet for Health Professionals
- Key Facts on Delirium
- VIHA Delirium Decision Tree
References


Other Reference Sources

- RNAO fact sheet on delirium for family members
  http://www.rnao.org/bestpractices/PDF/DDD2_Fact_Sheet.pdf

- VIHA Learning resource in Delirium
  http://www.viha.ca/ppo/learning/delirium

- The Hospital Elder Life Program (HELP) for clinicians interested in learning more about delirium
  http://elderlife.med.yale.edu/public/public-main.php

- Toronto Delirium resources for screening and care
  http://rgp.toronto.on.ca/article.pl?sid=02/03/06/2015212