Delirium

Beyond Climbing the Walls

Dr Suzanne Busch
What is it?
What does it look like?
Who gets it?
How to prevent it?
How to manage it?
Why is it important?
DELI R IUM- A HISTORY

- Hippocrates referred to it as phrenitis, the origin of our word frenzy.
- Celsus introduced the term delirium, from the Latin meaning derailment of the mind.
- Galen observed that delirium was often due to physical diseases that affected the mind “sympathetically.”
- Gowers recognized that these patients could be either lethargic or hyperactive.
- Bonhoeffer established that delirium is associated with clouding of consciousness.
- Engel and Romano (1959) described alpha slowing with delta and theta intrusions on EEGs and correlated these changes with clinical severity. They noted that treating the medical cause resulted in reversal of both the clinical and EEG changes of delirium.
What is it?

KEEP CALM
IT'S JUST A
BAD BRAIN DAY
A Basic Pathoetiologica Model of Delirium

Maldonado, Crit Care Clinic, 2008;24:789-836

Critical Illness

↓ O₂ supply

↑ O₂ demand

↓ O₂ availability to brain tissue

ATP-ase pump failure

Na⁺ influx

K⁺ outflux

Ca⁺ influx

GLU release

NT release

Anoxic depolarization

↑ tyrosine hydroxylase

↑ DA production

↓ breakdown in ATP dependent transporters (↓ NT reuptake)

↑ ATP production

↑ activity of O₂-dependent COMT

↓ NAD:NADH ratio

ACh

EEG*

NADH: NAD⁺ ratio

Cell swelling

Activation of NMDA-receptors

↑ cytotoxic quinones

NH₄⁺
What is it?

“Disturbance of global cortical function”
Failure of a vulnerable brain when insults occur
What does it look like?
What does it look like?

“They’re just not quite right”
What does it look like?

Disturbance of attention
  Reduced ability to
  Direct attention
  Focus attention
  Sustain attention
  Shift attention
What does it look like?

Disturbance of awareness

Vigilant (hyper alert)
Lethargic (drowsy, easily roused)
Stupor (difficult to rouse)
Coma (unrousable)
What does it look like?

Confusion
Memory loss
Disorientation
Language loss
Visuospatial difficulties
What does it look like?

Psychomotor behavioural disturbances
Hyperactivity
Hypo activity
Poor sleep
What does it look like?

Hallucinations
Floccillation
What does it look like?

Emotional Disturbances

Fear
Depression
Euphoria
Paranoia
What does it look like?

Develops over a short period of time
Hours – Days

Fluctuates during the course of the day
Who gets it?
Who gets it?

People with

- Pre existing dementia
- 40% in hosp
- Age > 80
- Increasing severity of illness
- Functional disability
- Sensory deprivation
Who gets it?

People with
Multiple medications
Who gets it?

Acute medical ward – 30%
  10% on arrival
  20% during hospital stay

Post #NOF 60%

ICCU 70%

Hospice 40%

Post acute care setting 20%
CAM (Confusion Assessment Method)  
1&2 + 3a or 3b

1. Acute Onset and Fluctuating Course
   Evidence of an acute change in mental status from baseline
   Did the abnormal behaviour fluctuate during the day

2. Inattention
   Does the patient have difficulty focusing attention (eg easily distractible) or have difficulty keeping track of what is being said

3a. Disorganised Thinking
   Irrelevant or rambling conversation, unclear illogical flow of ideas, or unpredictable switching from subject to subject

3b. Altered Level of Consciousness
   Vigilant(hyper alert), Lethargic(drowsy, easily roused), Stupor(difficult to rouse) or Coma (unrousable)
What causes it?
What causes it?

Often more than one thing
What causes it

Infection
  UTI
  Respiratory
  Skin
  Intra abdominal
What causes it

Infection
Metabolic Disorder
  Hypoglycaemia
  Hyperglycemias
Renal failure
Thyroid disease
What causes it

Infection
Metabolic Disorders
Abnormal Electrolytes
  Hyponatremia
  Hypercalcemia
Dehydration
What causes it

Infection
Metabolic Disorders
Abnormal Electrolytes
Low Perfusion states/Organ System Dysfunction
Heart Failure / MI / Stroke / Lung disease
Shock
What causes it

Infection
Metabolic Disorders
Abnormal Electrolytes
Low Perfusion states/Organ System Dysfunction
Drug or Alcohol Toxicity

Sedatives/Antidepressants/Analgesia
What causes it

Infection
Metabolic Disorders
Abnormal Electrolytes
Low Perfusion states/Organ System Dysfunction
Drug or Alcohol Toxicity or Withdrawal
Sedatives/Antidepressants/Analgesia
What causes it

Infection
Metabolic Disorders
Abnormal Electrolytes
Low Perfusion states/Organ System Dysfunction
Drug or Alcohol Toxicity or Withdrawal
Any other Illness/Trauma
Post op / Fall
What causes it

Constipation
Urinary retention
Dehydration
Pain
Unfamiliar environment
Prevention in hospital
Prevention in hospital

Identify those at risk

Quiet single room/avoid moving rooms/wards

Ensure glasses/hearing aids are worn

Orientation strategies
Prevention in hospital

Maintain mobilisation and routine

Maximise sleep
minimal disruptions for obs
low level lighting
Prevention in hospital

Ensure adequate hydration/nutrition
Avoid urinary catheters and IV lines
Management

All the prevention stuff
Management

Investigate and treat underlying causes
Often multi-factorial

Keep family and friends involved
Management

Comfort not Confront

Sedation
Haloperidol
Quetiapine
Benzodiazepines
Management in hospital

Low mattress
Sensor mat
Watch

Minimise restraint
Death from Bedrails
Why is it important?
Why is it important?

More likely to die

Post op in hosp 8% vs 1%
Post op 90 day mortality 11% vs 3%

Hospital patients 2x as likely to die within a year c/w otherwise similar with no delirium
Why is it important?

More likely to die
Longer length of stay in hospital
  12 days vs 7 days
Why is it important?

More likely to die
Longer length of stay in hospital
More likely to be discharged to RH
16% vs 3%
Why is it important?

More likely to die
Longer length of stay in hospital
More likely to be discharged to RH
Often unrecognised 1/3 – 2/3 missed
Why is it important?

Duration of Delirium
Can take 4-6 weeks to return to baseline
Some never return to baseline
Takes longer if not recognised or underlying condition not treated - Chronic delirium
Why is it important?

Co-ordinated targeted prevention programmes
Reduced incidence of delirium
Reduced LOS
Reduced Mortality
<table>
<thead>
<tr>
<th>Targeted risk factor</th>
<th>Strategy</th>
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<tbody>
<tr>
<td>Cognitive impairment</td>
<td>• Orientation protocols</td>
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<td>• Provision of clocks and calendars</td>
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<td>Functional impairment</td>
<td>• Early mobilization, including getting patient out of bed regularly and as tolerated starting on postoperative day 1</td>
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<td>• Daily physiotherapy with occupational therapy as needed</td>
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<td>Fluid and electrolyte imbalances</td>
<td>• Restoration of serum sodium, potassium and glucose levels to normal limits</td>
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<td>• Detection and treatment of dehydration or fluid overload</td>
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<td>High-risk medications</td>
<td>• Discontinuation or minimization of use of benzodiazepines, anticholinergics, antihistamines and meperidine</td>
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<td>• Modification of dosage or discontinuation of drugs to minimize drug interactions and adverse effects</td>
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<td>Pain</td>
<td>• Standing orders for acetaminophen use rather than use as needed</td>
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<td>• Treatment of breakthrough pain starting with low-dose narcotics; avoidance of meperidine</td>
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<td>Impaired vision and hearing</td>
<td>• Appropriate use of glasses, hearing aids and adaptive equipment</td>
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<td>Malnutrition</td>
<td>• Ensurance of proper use of dentures, proper positioning, assistance with eating if required and use of supplements if required</td>
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<td>Iatrogenic complications</td>
<td>• Removal of urinary catheter by postoperative day 2, with screening for urinary retention and incontinence</td>
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<td>• Implementation of a skin-care program</td>
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<td>• Bowel regimen to ensure bowel movements by postoperative day 2 then every 48 hours</td>
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<td>• Chest physiotherapy and supplemental oxygen if indicated</td>
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<td>• Appropriate anticoagulation therapy</td>
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<td>• Screening and treatment of urinary tract infection</td>
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<td>Sleep deprivation</td>
<td>• Unit-wide strategies to reduce noise</td>
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<td>• Scheduling of medications and procedures to allow for proper sleep</td>
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<td>• Use of nonpharmacologic measures to promote sleep</td>
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What is it like to be Delirious?

“I cant remember”
“Disconnected”
“Trying to get it straight” – Dreaming vs awake
“Fear and safety concerns”
What is it like to be Delirious?

Disconnected

“It felt like I was living in a bubble; I couldn’t move my arms or legs. And people all around me but no one answering me…. I would be calling out but no one would even look at me’
Fear and safety concerns

“the one that was most upsetting was the monkeys... up in the lights.... You could hear them jumping up and down, and they were bawling like they were trying to get at me. They were on all the lights, not just the one that was at my bed but all around the room... They were savages.... I didn’t know ...if they wanted to get out our get at me..... I’m still afraid to look up at the lights.....and I always....whisper because I ‘m afraid they will hear me”
Look for it especially in those who are vulnerable

Beware the quiet/drowsy elderly patient