Delirium In old Age

John Mc Manus
• Background
• Epidemiology
• Complications
• Pathophysiology
• Diagnosis
• Prevention
• Disturbance of consciousness

• A change in cognition

• The disturbance develops quickly and fluctuates

• Evidence from history, examination or investigations that the disturbance is caused by the direct physiological consequences of a medical condition
• COMMON!

• Up to 30% of medical inpatients

• The most frequent complication of hospitalization in this group

• Often not diagnosed
• Hyperactive: Hyperalert
  2am patient

• Hypoactive: Hypoalert
  2pm patient
<table>
<thead>
<tr>
<th>Study</th>
<th>No</th>
<th>Age(yrs)</th>
<th>Delirium(%) Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flint &amp; Richards(1956)</td>
<td>574</td>
<td>60+</td>
<td>42%</td>
</tr>
<tr>
<td>Bedford(1959)</td>
<td>5000</td>
<td>65+</td>
<td>80%</td>
</tr>
<tr>
<td>Hodkinson(1973)</td>
<td>588</td>
<td>65+</td>
<td>24%</td>
</tr>
<tr>
<td>Johnson et al(1990)</td>
<td>235</td>
<td>70+</td>
<td>16%</td>
</tr>
<tr>
<td>Francis et al(1990)</td>
<td>229</td>
<td>70+</td>
<td>16%</td>
</tr>
<tr>
<td>Bowler et al(1994)</td>
<td>153</td>
<td>60+</td>
<td>11%</td>
</tr>
<tr>
<td>O Keeffe &amp;Lavan et al (1997)</td>
<td>315</td>
<td>82(mean)</td>
<td>18%</td>
</tr>
<tr>
<td>Rudberg et al(1997)</td>
<td>432</td>
<td>65+</td>
<td>15%</td>
</tr>
<tr>
<td>Feldman et al(1999)</td>
<td>61</td>
<td>70+</td>
<td>18%</td>
</tr>
<tr>
<td>Study</td>
<td>No.</td>
<td>Age (Yrs)</td>
<td>Delirium Incidence (%)</td>
</tr>
<tr>
<td>------------------------</td>
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<tr>
<td>Miller (1981)</td>
<td>100</td>
<td>65+</td>
<td>14%</td>
</tr>
<tr>
<td>Seymour &amp; Pringle (1983)</td>
<td>258</td>
<td>65+</td>
<td>10%</td>
</tr>
<tr>
<td>Marcantonio et al (1994)</td>
<td>1341</td>
<td>50+</td>
<td>9%</td>
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<tr>
<td>Study</td>
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<td>Age (Years)</td>
<td>Delirium Incidence(%)</td>
</tr>
<tr>
<td>------------------------</td>
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</tr>
<tr>
<td>Williams et al (1985)</td>
<td>170</td>
<td>65+</td>
<td>52%</td>
</tr>
<tr>
<td>Gustafson et al (1988)</td>
<td>111</td>
<td>65+</td>
<td>42%</td>
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<tr>
<td>Magaziner et al (1990)</td>
<td>536</td>
<td>65+</td>
<td>23%</td>
</tr>
<tr>
<td>Marcantonio et al (2000)</td>
<td>126</td>
<td>65+</td>
<td>41%</td>
</tr>
<tr>
<td>Brauer et al (2000)</td>
<td>571</td>
<td>69-101</td>
<td>5%</td>
</tr>
<tr>
<td>Galanakis et al (2001)</td>
<td>37</td>
<td>60+</td>
<td>40%</td>
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</tbody>
</table>
• Patients who develop delirium do badly:

  Increased Mortality-10-65%

  Increased Length of stay in hospital

  Increased complications

  Less likely to be discharged home

  Stressful for family/NOK

• Increased risk of dementia. 18% per year risk for elderly inpatients with no history of cognitive
<table>
<thead>
<tr>
<th>Mechanism</th>
<th>E.g.</th>
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<tr>
<td>Altered neurotransmitters</td>
<td>ACh, Dopamine, 5HT</td>
</tr>
<tr>
<td>Altered HPA axis</td>
<td>Hypercortisolism</td>
</tr>
<tr>
<td>Cytokine production</td>
<td>IL-1, IL-6</td>
</tr>
</tbody>
</table>
• Acetylcholine maintains thalamic EEG fast wave activity

• Anticholinergic drugs cause delirium

• Cholinergic agonists reverse anticholinergic drug-induced delirium

• Higher serum anticholinergic activity (SAA) correlates with delirium severity and incidence
• Atropine animal model shows EEG slowing, maze impairment and hyperactivity.

• Alzheimer’s and vascular dementia that disrupt ACh pathways have increased risk for delirium

• Hypoxia, hyperglycemia, thiamine associated with ↓ ACh activity
• Important role in psychiatric illnesses

• Low 5HT levels related to aggression, suicide and impulsivity

• Serotonin Syndrome:
  1. mental health changes
  2. autonomic hyperactivity
  3. neuromuscular abnormalities
• Evidence that 5HT Receptor Antagonists reduces delirium post operatively.

• End result, despite diversity of aetiologies is “acute brain failure” [similar to ARF]

• The “size” of insult needed to precipitate delirium depends on physiological/brain reserve.
• Older age
• Male gender
• Visual Impairment
• Dementia
• Depression
• Functional dependence

➤ Malnutrition
➤ Dehydration
➤ Alcoholism
➤ Previous stroke
➤ High burden of illness
• Medications

- Alcohol
- Sedatives
- Narcotics
- Anticholinergics
- Antidepressants
- Antiparkinson’s

➢ Any severe illness
➢ Pain
➢ Sleep Deprivation
➢ Catheter
➢ Physical restraints
➢ Retention
➢ Surgery
➢ Immobility
➢ Sleep deprevation
➢ > 12 hours in A+E
• Medications are the most common iatrogenic cause of delirium


➢ Type and number of new medications is important

<table>
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<tr>
<th>No.</th>
<th>RR Delirium</th>
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<tr>
<td>2-3</td>
<td>2.7%</td>
</tr>
</tbody>
</table>
• **Iatrogenesis**

  Iatrogenic complications occur in 29% to 38% of older hospitalised patients, a rate three to five times greater than in young patients.

  Becker PM et al. Hospital acquired complications in a randomised controlled clinical trial of a geriatric consultation team. JAMA. 1987;257:2313-2317
• No biological markers

• Diagnosis relies on clinical symptoms, which also appear in other mental disorders e.g. depression, dementia, mania, dysphasia, hysteria

• Screening and diagnostic tools available, rarely used
• Delirium is missed 1/3 to 2/3 of the time


➢ Cognition rarely assessed

➢ Obs chart

➢ Attributed to dementia, depression.

➢ “normal” for older people to get confused in hospital. If a young person became acutely confused, it is a medical emergency
• Confused
• Abnormal level of alertness
• Disordered sleep-awake cycle
• Acute onset
• Fluctuates
Elderly patients

MMSE

MMSE ≥ 24

Exit

MMSE < 24

Assess duration of Cognitive impairment
1. Acute Onset
2. Inattention
3. Disorganized thinking
4. Altered level of consciousness

Need 1+2 plus either 3 or 4
• Informant Questionnaire on Cognitive Decline in the Elderly

• Simple to do

• Relative/ friend

• Numerical value for baseline cognition

Delirium

Delirium + dementia

Dementia work up

CAM+ IQCODE

CAM+ IQCODE- 

CAM+ IQCODE+

CAM- IQCODE+
• Inouye SK et al. A multicomponent intervention to prevent delirium in hospitalized older patients. NEJM 1999;340:669-676

852 patients ≥ 70 years

subjects did not have delirium on admission.

patients matched for age/sex/delirium risk

25% patients had a MMSE of ≤ 20
- Intervention consisted of standardized protocols for the management of six risk factors for delirium: cognitive impairment, sleep deprivation, immobility, visual impairment, hearing impairment, and dehydration.

- Intervention implemented by MDT plus trained volunteers.

- Patients screened daily until discharge for delirium.
• Results:

Delirium developed in 9.9% of the intervention group and in 15% of the control group (Odds Ratio 0.6, 95%CI 0.39-0.92)

➢ Conclusion:

1/3 cases of delirium can be prevented
1. Address underlying causes

- medications
- infections
- fluid balance/metabolic disorder
- impaired oxygenation
- severe pain
2. Environment

- Consistent nursing care
- Appropriate lighting for time of day
- Quiet environment
- Regular Orientation
- Hearing aids/ spectacles
- No inter ward transfers
• **3. Sedation**

  avoid if at all possible

  *Haloperidol recommended currently*

  **One-to-one nursing may be needed**
4. Anticipate and prevent common complications of delirium

- Incontinence
- Immobility
- Falls
- Pressure sores
- Sleep disturbance
• Very common

• Poor prognostic indicator

• Cognitive screening is key to diagnosis

• 1/3 cases can be prevented

• Once delirium develops, follow guidelines,
  but poor evidence base
THANK YOU.