Delirium and dementia: The best of friends, the worst of enemies

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Two great heavyweights
Generalised Cognitive Disorders

Delirium  
Acute  Subacute  Insidious  
Reversible  Chronic progressive

Dementia

1. Acute onset / fluctuating course
2. Prominent Inattention with reduced awareness
3. Generalised cognitive impairment
4. Underlying etiology

? Overly simple
Medline citations between 1980 and 2000

- Dementia
- Delirium
? Parallel Universes

Dementia Research

Delirium Research
MEDLINE CITATIONS WITH ‘DELIRIUM’ IN THE TITLE (1995-2012)

So what have we learned and how is it relevant to dementia?

Updated: Meagher, Int Rev Psych 2009
1. Delirium is common
   (and common in dementia)
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<thead>
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<tbody>
<tr>
<td>Siddiqi (2005): SR 42 Studies</td>
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<tr>
<td>Prevalence at admission</td>
<td>10-31%</td>
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<td>Incidence during admission</td>
<td>3-29%</td>
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<td>Overall freq per admission</td>
<td>11-42%</td>
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CUH 36 hour point prevalence

358 inpatients

311 assessed

142 cog problems*

169 ‘cognitively intact’

55 DSM IV Delirium

55% comorbid dementia

47 Excluded
Coma / stupor / severe dysphasia
Actively dying
Infectious risk
Refused n < 10
Psychiatry / paediatrics
2. Delirium is prognostically bad
Delirium linked to poor outcomes:

- LOS: Doubled
- Costs of care: Doubled
- Reduced subsequent functional status: 3x less likely to return ‘home’
- ‘New’ LTCI: c30%
- Increased subsequent ‘new’ dementia Diagnosis: 3x increase in following year
- Mortality
AND DON’T FORGET…

Mortality increased by 11% for every additional 48 hours of delirium

Gonzalez et al, 2009
Poor outcomes

Delirium impacts **independent of**
- Age
- Frailty
- Comorbidity severity
- Dementia status

And **predicted by**
- severity of delirium symptoms
- complications of uncontrolled delirium
Cognitive Superbug?

One in five hospitalised patients have a condition that is independently linked to poor outcomes.
3. Delirium and dementia have a complex bidirectional relationship
What do we know about the relationship between delirium and dementia?

- **High co-morbidity** (50% delirium also dementia; >50% dementia sufferers experience delirium if hospitalised) **AND a bad combination** (dementia patients who develop delirium have 25% mortality within 30 days)

- **Misdiagnosis common**

- **Increased risk of subsequent dementia** (x3 in year after episode; eight-fold in older patients)

- **? Harbinger vs accelerant or even causal**

- **Persistent cognitive impairment (LTCI)**

18 studies of LTCI post delirium with c 4000 patients
Clear link between delirium and LTCI
(30% of older patients)

LTCI occurs in patients deemed cognitively intact pre-delirium
Cognitive Trajectories of Alzheimer disease patients with and without delirium

Information-Memory-Concentration (IMC) : decline before (2.5 pts / yr) vs after (4.9 points / year) i.e. Doubling of rate of progression

Fong et al (2009)
Persistent Cognitive Deficits Following Delirium Episode: Possible Mechanisms

- Neurotoxicity of underlying etiologies
- Unresolved, prolonged, or recurrent delirium
- Progression or acceleration of preexisting cognitive decline
- Neurotoxicity of medications
- Neurotoxic effects of delirium complications
- Direct toxic effect of delirious state
  - Dysregulation of stress and inflammatory responses
Is delirium the most preventable known risk factor for dementia?

Either way – better delirium care = better dementia outcomes
4. Delirium is poorly identified and inconsistently managed
Delirium is one of the worst managed common conditions in modern healthcare systems.
<table>
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<tr>
<th>Study</th>
<th>Population Description</th>
<th>Missed Percentage</th>
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<tbody>
<tr>
<td>Elie et al (2000)</td>
<td>Elderly ER attenders</td>
<td>65%</td>
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<tr>
<td>Kishi et al (2007)</td>
<td>Gen hosp Psych referrals</td>
<td>46%</td>
</tr>
<tr>
<td>Han et al (2009)</td>
<td>Elderly ER attenders</td>
<td>76%</td>
</tr>
<tr>
<td>Collins et al (2010)</td>
<td>Elderly med admission</td>
<td>72%</td>
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<tr>
<td>Fang et al (2008)</td>
<td>Pall care patients</td>
<td>55%</td>
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<tr>
<td>Ryan et al (2013)</td>
<td>Gen hosp point prevalence</td>
<td>56%</td>
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Early detection...(pre) delirium: identifying a predictive model

Deliriogenic Insults

Prodrome

Cognitive
Emotional
Non-specific
Not themselves
Pain tolerance
Sleep/activity
Speech

Subsyndromal Delirium

Delirium

Decision Support: 3D-COP

Patient rousable and responsive
SQiD
Attention challenge
NuDESC
CAM
2-Item screener
GDS-5
AMTS
MMSE

Coma / Stupor
Delirium
Depression
Dementia
'Normal'
**Non-pharmacological management of delirium**

- Educate patient and family/carer on delirium and prognosis
  - Involve family/carer in hospital care routine
  - Reorientation and reassurance strategies
    - Normalise sleep patterns
  - Prevent complications - e.g. falls, constipation
    - Ensure adequate hydration
    - Ensure pain relief is adequate
  - Encourage activity - mobility and ADLs
    - Use visual/ hearing aids to facilitate communication
  - Nurse with familiar staff in relaxed environment
Treatment

- Modest evidence for both pharmacological and environmental approaches to both prevention and treatment.....NICE guidelines (2010)
- Guidelines vary in their emphasis – inconsistent application - reflecting perceived risk-benefit balance in different populations: pall care / ICU versus elderly medicine
- Pharmacological evidence mainly for APs: 32 prospective studies but only 2 placebo-controlled- 2/3 patients respond within a week (Meagher et al, 2013)
- Response to pharmacological and non-pharmacological interventions is diminished if comorbid dementia – coupled with increased risk of Adverse effects.......?net value
5. Complex problems rarely respond to simple solutions
Simple (e.g. Educational) interventions don’t endure

“Too bad we’re not going to remember this.”
Education and Awareness

Efficient Detection Tools

Effective Interventions

Penetration of policy, guidelines and real world protocols & procedures
European Delirium Association
9th Annual Meeting.

www.europeandeliriumassociation.com

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