Sex, Death and Change
Approach to delirium and medical catatonia in the elderly

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“Death is very likely the single best invention of life. It is life’s change agent.”
- Steve Jobs
Outline

- Case presentation Mrs K
- Case presentation Mrs T
- Overlap of features of delirium and catatonia
- Approach to diagnosis
- Approach to management
- Challenges
- Take home message
Mrs A

86 year old married woman

Previously independent and caring for husband who has dementia
  o Mobilises with frame

Presented to RAH via ambulance after 3 month history of worsening confusion and physical health deterioration
  o Decreased mobility, incontinent of urine, headache, SOB

Admission: 5/12/18 – 9/1/19 under Geriatric team
History of presentation

Initially presented to a private hospital 3 days prior

Treated for UTI on trimethoprim

3 months of general decline – increasing confusion, decrease mobility, more forgetful and paranoid

Son attempted to take her to GP, however could not mobilize, ambulance called
Past medical history

Hypothyroidism, on thyroxine
Hypercholesterolaemia, on atorvastatin
RA
CCF, on spironolactone, frusemide
HTN, on perindopril
Macular degeneration, on macuvision
GORD, Ranitidine
On examination

- Fluctuating orientation and consciousness, easily rousable
- Anxious, occasionally resisting nursing care
- Speech non-sensical, tangential, persecutory delusions
- “I've been eating a lot of blueberries” suspicious that AIDS could cause this
- Not observed to be responding to internal stimuli
- Amenable to stay in hospital
- Short shuffling gait, turns on point
On examination

Resisting examination

Vitals: 99% on RA, RR 18, BP 147/85, HR 82, afebrile

Lungs: bibasal crepitations

Abdomen: SNT

Legs: bilateral leg rash, red, dry, scaly, 2cm nodule on left leg, tender

Neuro: cogwheeling bilaterally, tone normal
<table>
<thead>
<tr>
<th>Investigation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP</td>
<td>76</td>
</tr>
<tr>
<td>T4</td>
<td>30</td>
</tr>
<tr>
<td>Vitamin B12</td>
<td>low</td>
</tr>
<tr>
<td>Urine MCS</td>
<td>enterococcus</td>
</tr>
<tr>
<td>ECG</td>
<td>old TWI V6 V5, LVH</td>
</tr>
<tr>
<td>CXR</td>
<td>blunting of costophrenic angles</td>
</tr>
<tr>
<td>CTB</td>
<td>nil acute pathology</td>
</tr>
<tr>
<td>MRI</td>
<td>2 x old infarcts, 1x small microhaemorrhage in cerebellum, global atrophy</td>
</tr>
<tr>
<td>DVT USS</td>
<td>negative left lower leg</td>
</tr>
<tr>
<td>Cognitive testing Day 5</td>
<td></td>
</tr>
<tr>
<td>MOCA</td>
<td>17/30 (11/22 for poor vision)</td>
</tr>
<tr>
<td>Deficits</td>
<td>visuospatial/, executive functioning, attention, language, delayed recall</td>
</tr>
<tr>
<td>FAB</td>
<td>18/18</td>
</tr>
</tbody>
</table>
Problem list

1. Cognitive impairment with psychotic element
   i. Acute delirium +/- subacute or chronic cognitive impairment
2. Bilateral leg rash – lipodermatosclerosis
3. Enterococcus UTI
4. Clinical features of Parkinson’s Disease
5. Mild hyperthyroidism
6. BNO 6 days
Progress

Trial of L-Dopa 50mg TDS, however became increasingly confused → ceased

Worsening confusion, persecutory, somatic and bizarre themes in conversation

Features of mania, euphoric, increased rate of speech, “lively conversation with self”, appeared disheveled, poor sleep overnight

→ Psychiatry CL Referral
Impression and progress.

• Acute organic brain syndrome on a background of likely neurocognitive disorder with affective and psychotic features
  • Commenced on regular olanzapine
• Complications – pleural effusion, pneumosepsis, ?EPSE/NMS – increased muscle tone
• Olanzapine PRN ceased
• Change in mental state
  • Became less agitated, more hypoactive
  • “asleep most of the shift”, less alert
  • Less responsive, “minimal coherent answers”
• Developed features of waxy flexibility, staring, catalepsy, rigidity, negativism, gegenhalten, grasp reflexes, marked motor retardation
  • BFCRS 27
Impression

1. Hypoactive delirium with psychotic features
2. Catatonia
3. Medical complications
4. Dementia
Miss T

- 85 year old lady from home with partner, independent with ADLs and mobility
- Presented with confusion
- Admission 27/11/18 – 12/1/19
HOPC

• 1 month history more forgetful and confused
• MVA 5 days ago while driving, ran red light
Progress

- MMSE 28/30
- FAB 18/18
- MRI B: mild background volume loss with prominent perivascular spaces at level of basal ganglia. Lacunar infarct at left anterior insular cortex. No acute intracranial pathology
- Sudden drop in verbal responsiveness, presenting as vague, not following commands, impulsive, getting out of bed, not compliant with instructions
- Code Stroke called
- Leviteracetam IV loading ?absence seizure and post ictal state
Progress

- EEG – no ictal or epileptiform features, intermittent slowing
- Fluctuating drop in GCS
- Intermittently following commands, staring away, not maintaining eye contact, delayed response
- Episodes staring into space
- Delusional ideas dogs, calling me a dog
- CRP raised, WCC raised, Urine MCS E coli
- ?hypoactive delirium
Progress.

- MET calls for reduced responsiveness, GCS3-4 - 14
  - Fluctuating in nature
- High WCC and CRP
  - Aspiration pneumonia
- Extensive organic screen
  - ?paraneoplastic syndrome
  - ?Limbic encephalitis
- Neuro team involved
  - Hypoactive delirium
  - Subsequent review, features of catatonia
- Referred to Psychiatry CL team –
  - BFCRS 14
  - Negativism, rigidity, no verbal responsiveness, akinetic mutism
  - Trial lorazepam, trial clonazepam
  - Consideration of ECT
Differential Diagnoses

- Focal seizures
- Hypoactive delirium
  - UTI, aspiration pneumonia, ?encephalitis
- Catatonia
- Behavioural component?
Challenges in diagnosis

• Hypoactive delirium
• Catatonia
• DSM IV and V specify that diagnosis of catatonia due to GMC should not be considered if occurs exclusively during an episode of delirium
• Kahlbaum – early description of catatonia with confusion
• Frequently co-morbid
  • Grover et al 12.7-30.2% patients
• Delirium occurs in 1/5 medical inpatients
• Both syndromes share clinical features and diagnosed on clinical grounds
  • Prominent psychomotor abnormalities
  • Causes greatly overlap
• Overlap in causative factors of medical catatonia and delirium
• One may follow the other, or coexist simultaneously
• 30-50% of cases of older adults in acute medical settings with catatonia, found to suffer from co-existing delirium
• Another study - mixed and hypoactive delirium subtypes were more frequently encountered in patients with catatonia
• Grover et al. found higher prevalence of motor retardation symptom as per the DRS and higher prevalence of hypoactive and mixed subtype of delirium as per amended DMSS

Catatonia and delirium
Catatonia in a medical setting

- Catatonia reported to cause diagnostic dilemmas in unresponsive patients
  - Symptoms: stupor, mutism, rigidity, negativism, catalepsy
- Frequency due to medical condition is up to 41% of all cases
  - 3.3% neurology/neuropsychiatry in patients (Llesuy et al)
  - 3.8% ICU
  - 1.6 - 1.8% on psychiatry CL services
  - 8.9% elderly referred to CL
- Serra-Mestres and Jaimes-Albornoz commented on studies of older adults in general hospitals, catatonia found in 5.5-8.9% of cases
- Jaimes-Albernoz et al study 100% elderly catatonic patients had immobility/stupor and staring, 80% mutism and withdrawal, 70% negativism
- Catatonia inhibition, mainly observed in medical catatonia
- In older adults, frequently associated with hyponatremia, UTI, stroke, encephalitis, dementia, dopamine agonist exposure

Catatonia in a medical setting
## Clinical Features

<table>
<thead>
<tr>
<th>Hypoactive Delirium (Mayo Clinic)</th>
<th>Catatonia (DSM V/BFCRS)</th>
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</thead>
<tbody>
<tr>
<td>Reduced motor activity</td>
<td>Stupor</td>
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<tr>
<td>Lethargy</td>
<td>Catalepsy</td>
</tr>
<tr>
<td>Withdrawn, little response to environment</td>
<td>Waxy flexibility</td>
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<tr>
<td>Drowsiness</td>
<td>Mutism</td>
</tr>
<tr>
<td>Staring into space</td>
<td>Negativism</td>
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<tr>
<td>Disturbance in attention – focus, orientation</td>
<td>Posturing</td>
</tr>
<tr>
<td>Fluctuation</td>
<td>Mannerism</td>
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<tr>
<td>Disturbance in cognition – memory, visuospatial perception, language</td>
<td>Stereotypy</td>
</tr>
<tr>
<td>Disturbed sleep</td>
<td>Agitation</td>
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<tr>
<td></td>
<td>Grimacing</td>
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<tr>
<td></td>
<td>Echolalia</td>
</tr>
<tr>
<td></td>
<td>Echopraxia</td>
</tr>
<tr>
<td></td>
<td>Staring</td>
</tr>
<tr>
<td></td>
<td>Rigidity</td>
</tr>
<tr>
<td></td>
<td>Withdrawal</td>
</tr>
<tr>
<td></td>
<td>Verbigeration</td>
</tr>
</tbody>
</table>
Catatonia underdiagnosed

- Study by Llesuy et al (2018)
- Retrospective study, examples of exact chart quotes describing catatonia
  - “not easily rousable” - stupor
  - “resistance at beginning that decreases as motion continues” – waxy flexibility
- Potentially catatonia-related keywords in undiagnosed charts
  - Agitation, rigidity, immobility, staring, perseveration, posturing, stupor
  - Most common in undiagnosed – grimacing, echolalia, agitation
- Factors contributing – not referring CL services, heterogeneity in clinical features
- Increased mortality and length of stay – not statistically significant outcomes
“Quiet delirium”
https://www.youtube.com/watch?v=zv38U8SNJFs

Catatonia
https://www.youtube.com/watch?v=_s1lzxHRO4U

Illustration
To differentiate

Clinical features BFCRS/DSM and DRS/CAM

Lorazepam challenge
0.5-1mg PO/IM
If ineffective, repeat after 30 minutes, then 3 hours

Zolpidem challenge
Bush Francis
Catatonia Rating Scale

- 23 item clinician rated scale
- High reliability
- Each item is scored on a 0-3 point scale to rate severity
- The first 14 items are used as a screening instrument
- Presence of at least 2/14 for 24 hours is considered to be an indicator
- Items 1-23 are rated using a scale of 0-3 for severity
- Utility in listing and defining catatonic signs, threshold for diagnosis and monitoring response
- Clinical response defined as 50% reduction in features on BFCRS
- One study showed high inter-rater reliability
- Validity hard to assess because of lack of established diagnostic criteria and descriptions of signs
Confusion Assessment Method

- Standardised evidence based tool
- Screening tool to alert presence of possible delirium
- CAM-ICU for mechanically ventilated, non verbal patients
- Sensitivity of 94-100%, specificity of 90-95%
- High inter-rater reliability
- Diagnostic algorithm based on 4 cardinal features
  - Presence of acute onset and fluctuating course + inattention
  - And, either/or disorganized thinking and altered level of consciousness
- Presence, severity of other features – psychomotor disturbance, memory impairment, altered sleep wake cycle
To differentiate

EEG in catatonia mostly normal, medical catatonia >80% abnormal findings

EEG in delirium often diffuse background slowing, typically delta range
Back to the cases.

• Mrs A responded to lorazepam challenge, with a clear improvement of her BFCRS from 27 to 14
  • Maintaining eye contact, reduction in waxy flexibility, less rigidity
• Complications – pneumonia, T2RF, required flumazenil, which worsened her catatonic features
• Miss T did not respond to lorazepam challenge
• ECT considered in both cases, however families decided not for further medical intervention and decided on comfort care.
Challenges in management

- Treatment choice in catatonia is lorazepam
  - GABA-A receptors
  - Effective 60-80%
  - Can exacerbate delirium, worsen confusion in elderly

- Symptomatic treatment choice in delirium – antipsychotics
  - Can worsen catatonia

- Older adult
  - Background of neurocognitive impairment
  - Polypharmacy and medical comorbidities
Challenges from cases

- Sedation from medication vs catatonia vs hypoactive delirium
  - CL role in helping clarify home team concerns
- Delivery of benzodiazepines
  - Availability of IM
  - Not taking orally
  - NGT crushed
- Benzodiazepines worsening respiratory failure and delirium
- Consideration of ECT with concerns around anaesthetic safety, requires early diagnosis of catatonia
- Logistics of ECT at RAH
Should be managed in general hospitals, with multidisciplinary input

1. Symptomatic treatment – pharmacological
   • If responsive to lorazepam, 0.5mg TDS – QID
   • Dose titration against sedation
   • Meyen et al. initiated benzodiazepines as soon as catatonia suspected, followed shortly by ECT referral
   • Meyen et al used valproate to target agitation in lieu of antipsychotics to target agitation
     • Difficulty to elucidate exact role valproate played due to complicated admission
     • Monitoring of ammonia levels
   • Avoid high potency neuroleptics
     • Can cause catatonic like symptoms EPSE
     • May potentiate NMS
1. **Symptomatic treatment - ECT**
   - ECT should be considered if non response to benzo after 2-4 days
   - High rate symptom remission, as high as 90%
   - Patients refuse to eat, unable to provide self care, consider ECT urgently
   - Coadministration of benzodiazepines reduce seizure threshold
   - Cases of post-ictal delirium after ECT
   - Kikuchi et al. (2009) found catatonic symptoms prior to ECT is a strong predictor of post-ictal delirium
   - Neilsen et al. (2014) case series of ECT successful in treating 5 patients with refractory delirium in ICU
   - Berg et al (2016) case of severe delirium, improved fluctuating state with 7 sessions of ECT
2. Treatment of cause
   - **Simultaneous** thorough medical work up to find and treat medical etiologies of catatonia and delirium
Medical work up

Infection
- Serology: CBE, blood culture, syphilis, viral serology – Hep C, Hep B, HIV
- Urine: MCS
- Imaging: CXR, MRI B, Echo
- Other: LP, EEG

Biochemical/Endocrine/Metabolic
- Serology: Sodium, Calcium, TFT, glucose, cortisol, pH, LFT, RFT

Neurological
- Examination
- Imaging: CT, MRI B, SPECT
- Serology: Vitamin B12, folate, vitamin D, thiamine
- Other: EEG

Autoimmune
- Serology: NMDA R Ab, VGKC Ab, AMPA R Ab
- Imaging: PET, ovarian/testicular USS

Inflammatory
- Serology: CRP

Neurodegenerative
- Imaging: CT, MRI B

Toxicology
- Serology: blood alcohol level, lead, CK
- Urine: UDS – benzo, opioids
3. Supportive measures to prevent complications
   • Hydrate to prevent AKI
   • Reverse hyperthermia
   • Maintain adequate nutrition
   • Monitor oxygenation closely
   • Provide prophylaxis for DVT or PE
   • Prevent pressure ulcers and muscle contractures
   • Mitigate against aspiration pneumonia
Take home messages

- Can co-occur
- Difficult to differentiate
- Maintain high index of suspicion for both catatonia and delirium – aid in early diagnosis
- Role of CL Psychiatrists
- Difficult to manage
- Consider ECT early
Thank you
References