Brain Injury in the Elderly

RCP London 18.11.19

Shuli Levy
Geriatrician, Hammersmith hospital
Outline

Types of brain injury in elderly
Outcomes and determinants
Current guidance
Cases
# Types of brain injury in elderly

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Trauma                            | Subdural bleed (commonest)  
                                 | Traumatic SAH, EDH  
                                 | Axonal injury                                      |
| Vascular event                    | Stroke – ischaemic, haemorrhagic  
                                 | Spontaneous SAH                                     |
| Hypoxia or hypo-perfusion         | Cardio-respiratory arrest  
                                 | Shock                                                |
| Infection or inflammation         | Encephalitis / meningitis  
                                 | Vasculidies                                          |
| Toxic or metabolic                | Poisoning / intoxication  
                                 | Hypoglycaemia                                        |

Adapted from draft PDOC guidance (RCP 2019)
Burden of problem – all comers major trauma (TARN 2017)


TBI by far commonest form of injury in older major trauma (excluding isolated NOFs)
Burden of problem - stroke

- 100,000 strokes in UK per yr – Stroke association
- SSNAP:
  - Crude mortality rate 13%
  - 87% infarct, 13% haemorrhage
  - NIHSS 16-20 = 7%
  - NIHSS 21-42 = 8.9%

Han et al, 2017

Fonarow et al, 2012
Overall incidence of brain injury in older people

Not known and difficult to measure

Rising

- ageing population
- better data collection
- more older people being actively investigated and managed than ever before (NICE HI guidelines)
- ? More bystander CPR and pre-hospital management
Outcomes – major trauma

Major Trauma in Older People (ISS>15)

Mortality at 30 days and six months from discharge

Injuries in patients who died

Determinants of outcome in older people after brain injury

- Frail stroke patients seem to do worse (Winovich et al 2017)
- In trauma patients, frailty may play a significant role in determining outcome, but not fully understood yet
- Evidence that sarcopaenia on major trauma scans is associated with worse outcome / higher mortality (Leeper et al 2016)
- Severe comorbidity burden is associated with higher mortality in MT (TARN)
- But mortality is still high among less comorbid older people – frailty may be more important than number of comorbidities alone
- Over 75s who survive major trauma are often more frail but report good quality of life (Koizia et al 2019)
Outline

Types of brain injury in elderly
Outcomes and determinants

**Current guidance**

- PDOC vs TDOC
- Trajectories
- Assessment
- CANH
- Resuscitation / ReSPECT

Cases
Current guidance – PDOC vs TDOC

• In older people, prolonged, disordered consciousness can be caused by a variety of conditions
• As well as PDOC, terminal decline in consciousness (TDOC), can occur in neurodegenerative disease
  • Dementias
  • PD / Parkinsonian disorders
  • Cerebrovascular disease
• Patients in TDOC may present very similarly to those in PDOC
• Difference is trajectory of disease and potential for improvement
• Patients with neurodegenerative diseases are on a downward trajectory towards death, with no potential for improvement
• Great variation between individuals, associated with uncertainty and unpredictability
Proposed schematic diagram of some of the possible trajectories of disordered consciousness, lasting > 4 weeks (Draft PDOC guidance, RCP 2019)
The causative illnesses can occur at any age. Some patients will be previously healthy and fit with decades of life ahead of them. Other will have frailty or co-morbidities that would naturally shorten their life expectancy irrespective of the brain injury(6).
Current guidance – older PDOC patients

- Older patients who do present in PDOC may progress very differently to younger patients
- May have a worse trajectory than younger people
- May have existing comorbidities +/- frailty which affects prognosis and/or
- Become rapidly more frail as a result of injury – infections, pressure areas, decompensated organ function - less reserve
- Trajectory different – failure to stabilise and spiralling decline
- The variation in prognosis and uncertainty affecting all PDOC patients is particularly the case in older age group
Current guidance – older PDOC patients

- For those older people who are not on a stable trajectory or for whom prognosis appears worse, *decision making should be careful and balanced*
- Can be viewed in the context of patient categories used in BMA/RCP CANH guidance

 Previously healthy patients in VS or MCS following sudden-onset brain injury

 Patients with multiple comorbidities or frailty which is likely to shorten life expectancy, who have suffered a brain injury

 Patients with neurodegenerative conditions
Assessing elderly PDOC patients

Prognosticating in elderly is always challenging
- months to a year, rather than years to decade/s
Experienced, multi-professional team needed
Not based on a snap-shot view
Cumulative impact of comorbidities and frailty is important in brain injury, but not necessarily determinative
Patients in PDOC always lack capacity and all decisions made are therefore in best interests

Consider
- What is the likely prognosis – survival and functional?
- What might this person’s wishes have been?
- Is continued treatment in their best interests?
- What ceilings of care are suitable?
Assessing elderly PDOC patients

- Transferring to a PDOC unit, for full assessment may not be in best interests of older person
- If full assessment is done, consider shorter assessment eg CRS-R x 6 over a two week period, which is the minimum recommended by the originators
- Distinguishing between VS/MCS may not have the same relevance in an older person as it will in a younger person – comorbidities and age may well limit potential for regaining consciousness / recovery
- The key issue is whether, through further assessment and treatment, they will gain a quality of experience that they themselves would value
Decisions around CANH in older PDOC patients

Given the wide variation in prognosis and certainty, current guidance suggests a proportionate approach to CANH withdrawal which ties in with recent BMA/RCP guidance.

CANH guidance provides a framework for documentation and external scrutiny of withdrawal decisions.

System for ‘proportionate review’ of decisions:

- Level of external scrutiny of CANH decision should be proportionate to the consequences of the decision.
- This in turn is a function of:
  - Prognosis
  - Certainty attached to prognosis
  - The impact of delaying and or / making wrong decision

This system may be useful in supporting withdrawal of other forms of life sustaining treatment, not only CANH.
**Proposed framework for proportionate external scrutiny of CANH withdrawal in patients with PDOC following sudden brain injury** (Draft PDOC Guidance, RCP 2019)

<table>
<thead>
<tr>
<th>Category</th>
<th>Condition and pathway</th>
<th>Level of Scrutiny</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Any patient with a valid applicable ADRT refusing CANH, or LPOA authorised to refuse life-sustaining treatments</td>
<td>Trust's clinical (and/or legal) team review ADRT / LPOA documentation to confirm is valid and applicable</td>
</tr>
<tr>
<td><strong>Patients in PDOC with a poor prognosis who are unlikely to live for more than a year</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1        | Patients for whom death is imminent (eg within hours or days)  
1. Or CANH contra-indicated for clinical reasons  
2. Or CANH is being withdrawn (with Family’s agreement) as part of an established end of life programme in a patient who is already dying | 3. Documented BI decision-making, with the family and clinical team  
4. No external scrutiny required |
| 2        | Patients in a condition (eg declining consciousness or other co-morbidities) that will inevitably result in death, not necessarily imminently but most probably less then one year  
Family and treating team agree that continued CANH is not in the patient’s best interests | 5. Documented BI decision-making, with the family and clinical team  
6. Second consultant not directly involved with patient’s care (They should not be from the same department as the treating team, but may be from the same hospital. They should see the patient in person)  
• Where a GP is the responsible decision-maker, the CCG should pay for a suitably qualified and experienced physician to provide the second opinion. |
| **Patients in PDOC with a stable or upward trajectory or who may live for a number of years** | | |
| Principles | The level of scrutiny depends on the prognosis for recovery and the degree of uncertainty. These in turn depend on:  
• The age at injury and the type and severity of the brain injury  
• The duration of PDOC  
• Any trajectory of change  
Family and treating team agree that continued CANH is not in the patient’s best interests | All should have:  
7. Documented BI decision-making, with the family and clinical team  
8. Expert assessment of PDOC (RCP guidelines)  
9. Senior independent medical consultant (so far as is reasonably practical, they should be from outside the treating organisation)  
10. At least one of the consultants must be a registered PDOC Expert according to the criteria set out in Annex 2b of these guidelines. |
| 3        | High degree of certainty about prognosis for recovery  
Eg Patients with very low level disordered consciousness with a stable flat or downward trajectory, or long standing PDOC (eg permanent VS or MCS) for whom there is a high level of certainty they will never regain consciousness. | 11. All of the above met and two senior medical consultants have already supported withdrawal  
12. The first PDOC Expert may request a second independent consultant specialist in PDOC providing further confirmation - usually as a desk-top review - to confirm that the documentation is sufficiently complete. |
| 4        | Lesser certainty about prognosis for recovery, but agreement on best interests  
Eg Patients with a moderate/ fluctuating level of response or shorter duration (continuing VS or MCS), but in whom the family and treating team in clear agreement that, even if they did regain consciousness, they will never recover to a quality of life that they themselves would value | 13. Documented BI decision-making, with the family and clinical team  
14. Senior independent consultant with specialist experience of PDOC  
15. Application to the Court of Protection |
| 5        | Patients for whom there is significant disagreement about best interests – either between the experts, or between the treating team and family | }
<table>
<thead>
<tr>
<th>Patients in PDOC with a poor prognosis who are unlikely to live for more than a year</th>
</tr>
</thead>
</table>
| 1 | Patients for whom death is imminent (e.g. within hours or days)  
   1. Or CANH contra-indicated for clinical reasons  
   2. Or CANH is being withdrawn (with Family’s agreement) as part of an established end of life programme in a patient who is already dying |
| 2 | Patients in a condition (e.g. declining consciousness or other co-morbidities) that will inevitably result in death, not necessarily imminently but most probably less than one year  
   Family and treating team agree that continued CANH is not in the patient’s best interests |

3. Documented BI decision-making, with the family and clinical team  
4. No external scrutiny required  

5. Documented BI decision-making, with the family and clinical team  
6. Second consultant not directly involved with patient’s care  
   (They should not be from the same department as the treating team, but may be from the same hospital. They should see the patient in person)  
   - Where a GP is the responsible decision-maker, the CCG should pay for a suitably qualified and experienced physician to provide the second opinion.

Note – second opinion for withdrawing CANH in this group of patients does not necessarily need to be a PDOC expert or from another Trust, although they do need to be independent of the case.
Resuscitation decisions

- Resuscitation decisions should be considered as part of a broader discussion around life sustaining treatment.
- CPR decisions are often more emotive and distressing than others for families, fraught with misinformation and anxiety:
  - Denial of basic care / right
  - Shift in care from active to palliative (‘giving up’)
  - Ageism
- It’s the clinicians responsibility to appropriately and sensitively communicate this clinical decision.
- Most clinicians are finding resuscitation discussions more difficult post Tracey/Winspear - finding the right words is very hard.
- The threshold for not communicating resus decisions is very high.
- Repeated contacts and offer of second opinion.
Resuscitation decisions

- Survival rates with good neurological outcome post cardio-respiratory arrest are universally poor (guidelines excellent for referencing this)
- In the context of existing brain injury, further hypoxic injury is likely to lead to worse damage and a worse outcome
- In older PDOC patients, resuscitation is highly unlikely to be appropriate
- In the presence of uncertainty about prognosis and / or potentially reversible problems, resuscitation may still be appropriate
  - Consider short CPR
  - Clear ceiling of treatment documented
  - Specific instructions on potentially reversible problems eg blocked tracheostomy
ReSPECT

Recommended Summary Plan for Emergency Care and Treatment
Recently adopted by UK Resus Council but has been in pilot stages for several years (Zoe Fritz, Addenbrookes/Wellcome trust)
Research drew on:
- patient and public experiences
- broad NHS stakeholder engagement
- barriers and facilitators of implementation

‘Process, that creates personalised recommendations for a person’s clinical care in a future emergency, in which they are unable to make or express choices’
  - includes, but not limited to, resuscitation
  - respects both patient preferences (where known) and clinical judgement
Explore and enhance understanding of condition and summarise

Details of other planning documents

Priorities for care: sliding scale

What is most important to them?

Focus and types of care and treatment available

Resuscitation decision

Resus.org.uk/respect
Current guidance – summary

Decisions must be individualised and in person’s best interests
Full PDOC assessment in older people *may not be appropriate*
But older people should not be denied access to expertise and assessments
Should not be treated on basis of age alone
Experienced clinician/s and MDT should inform decision
Establish patient’s wishes and beliefs if known
Managing expectations

Unrealistic expectations can be biggest barrier to making decisions and progressing patient journey
Messaging must be consistent and delivered with professionalism and empathy
Time-limited trials of certain interventions
Families cannot insist on treatments that clinical team do not think are clinically appropriate
Second opinions helpful in situations of conflict
Summary

Read the guidelines!
Older patients with PDOC
- May well have worse prognosis than younger person, with less reserve
- Consider different - but always individualised – approach
- Best interests at the heart of decision making
- Resuscitation decisions in the broader context of priorities for future care

Shuli.levy@nhs.net