Prognosis:

What happens in Transient Epileptic Amnesia: over TIME?

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At onset, most commonly.... (Butler et al., 2007)
Common memory difficulties

- Certain life events
- Routes/ places
- new information

(Hoefefijzers et al., 2013)
TEA short-term outcome:

Short-term (6-24 months after commencing medication):

- good seizure control (Butler et al., 2007)
- stable intellectual abilities (Del Felice et al., 2014)
- Some improvements in memory for new information (Midorikawa & Kawamura, 2008; Razavi et al., 2010)
- Improved memory for recent life events (Mosbah et al., 2014)
Medium to longer-term outcome?

Research to-date:

- 5-yr follow-up: stable (Kapur, 1989)
- 16-yr follow-up: risk of Alzheimer’s Disease? (Cretin et al., 2014)
Aims

to investigate outcomes of TEA over 10 (or in some cases 20 years)

- Follow up with people seen through TIME
- Collect medical info
- Repeat cognitive assessment
Participants

Zeman et al 1998 cohort (C1)
- 9 men; 1 woman
- Age of onset: 49 – 78 years (average = 63 years)
- Seizures well controlled on medication (80%)

Butler et al 2007 cohort (C2) - additional 42 people
- 27 men; 15 women
- Age of onset: 44 – 77 years (average = 62 years)
- Seizures well controlled on medication (96%)
Method: Medical history

Summaries from GP

- Seizure and medication history
- Record of cognitive problems (e.g. memory, planning)
- Cause of death, where applicable
Method: Cognitive ability

- Standard memory tests
  - Story recall
  - Visual recall (geometric figure)
  - Recognition test (words and faces)

- Standard cognitive tests
  - General ability (IQ)
  - Visual skills (drawing)
  - General knowledge (picture naming)
  - Executive function (problem solving)
Results - Clinical outcome
- **Seizures**: controlled (7 with medication; 1 not)
- **Cause of death**: ruptured aneurysm
- **Dementia**: None diagnosed
- **Seizures**: 20% of people had at least 1 more seizure.
- **Life expectancy**: did not appear reduced (average = 82 years)
- **Causes of death**: pneumonia, cancer
- **Dementia**: 6 cases (AD cases: 8.6%)

(Savage et al. 2016; Seizure)
Seizures: 2 had at least 1 more seizure.

Causes of death: pneumonia, cancer, heart failure (all aged in 80s)

Dementia: 1 case

(Savage et al 2016; Seizure)
### Participants – Cognitive outcome

<table>
<thead>
<tr>
<th>Demographics</th>
<th>TEA-BL (n=50)</th>
<th>TEA-10yr (n=19)</th>
<th>TEA-20yr (n=3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age</td>
<td>66yrs</td>
<td>75yrs</td>
<td>83yrs</td>
</tr>
<tr>
<td>Sex (M : F)</td>
<td>34 : 16</td>
<td>15 : 4</td>
<td>2 : 1</td>
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</tbody>
</table>

People with TEA

Similar people but without TEA
Cognitive ability

TEA participants compared with IQ and age matched controls

Memory tests: initial and 10-yr results

(21% below)  (26% below)  (0% below)  (26% below)  (16% below)
Cognitive ability

TEA participants compared with IQ and age matched controls

Other cognitive tests

- Naming: (5% below)
- Problem solving – Words: (11-17% below)
- Problem solving-sorting: (0% below)
Comparison with matched adults

- Mild memory difficulties are common in TEA (green bars)

- And often persist over time (blue bars)
  - For some individuals: stable or improvements;
  - in others: declines

- In other intellectual abilities, people with TEA generally perform in keeping with their peers and do not show declines over a 10-year period
Memory at 20-year follow up

Raw score

Immediate Story (out of 25)  Delayed Story (out of 25)  Delayed Figure (out of 36)  Recognise Words (out of 50)  Recognise Faces (out of 50)

Memory tests

TEA 1  TEA 2  TEA 3  HC
So what did we learn overall?

- Seizures generally remain well controlled, but some adjustments to medication may be required from time to time
- Memory difficulties commonly persist in TEA
  - For some: stable or some improvement over 10-20 years;
  - in others: some declines
- BUT: compared with matched community participants, people with TEA generally perform in keeping with their peers
- Across the two cohorts, prevalence of Alzheimer’s Disease (8.6%) was similar to population data (9.7%)
Acknowledgements

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Thank you for listening

Comments or questions?
References

References

• Savage, S et al. (in press). The evolution of accelerated long-term forgetting: Evidence from the TIME study. Cortex
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