EMOTIONAL AUTOBIOGRAPHICAL MEMORIES IN AMNESIC PATIENTS WITH MEDIAL TEMPORAL LOBE DAMAGE

Tony W. Buchanan, Daniel Tranel, Ralph Aldolphs

Presentation by: Janelle Chung

OVERVIEW

- Background
- Experimental Design
- Results
- Discussion
- Thoughts and Comments

BACKGROUND

- Amnesic patients with MTL lesions able to recollect remote autobiographical memories (Reed and Squire, 1998)
  - Cognitive characteristics well studied
  - Emotional characteristics have not been examined

BACKGROUND

- Events associated with emotional arousal remembered more vividly and forgotten slower (Bernsten and Rubin, 2002)
- Acquisition of emotional memories focus of much research (Cahill, 2000)
  - Structures for retrieval are less well understood

BACKGROUND

- Temporal Distribution of Memory
  - Recollection
    - Childhood amnesia
    - Monotonically decreasing retention function
      - Remember last 10-20 years best
    - Autobiographical Memory “bump”
      - Memories from 10-30 years old

LET'S TRY SOMETHING...

- Think of one of your most emotional memories
- Rate it 1-7 for
  - Pleasantness
  - Intensity
- How old were you?
**Question**

What is the emotional nature and temporal distribution of remote autobiographical memories of amnesic patients with MTL lesion?

**Method**

- Subjects:
  - 8 subjects in HC group
  - 2 subjects in HC+ group
  - 10 subjects in BDC group
  - 25 subjects in NC group
- Data Collection:
  - Neuroanatomical data: MR Images, Brainvox
  - Neuropsychological data: test of anterograde amnesia

**Procedure**

- Memory tests
  - Top 5 emotional memory interview
  - Word-cued memory interview
  - Cookie Theft Picture (control)
- Scoring
  - 0–3 scale: specific info on time and place
  - 1–7 scale: pleasantness, intensity
- Audiotaped and transcribed

**Results**

- Three-group by three-category ANOVA
- Gender was not significant
- Top 5 Memory Interview
  - NC produced more unpleasant memories
  - High intensity
- Word Cued Memory
  - BDC, HC fewer memories
  - Significantly more neutral memories
  - Middle intensity
- Temporal Distribution
  - Autobiographical memory “bump” present

**Table 3. Word usage in autobiographical memory and control task (cookie theft) descriptions**

<table>
<thead>
<tr>
<th>Patient group</th>
<th>Word count</th>
<th>Percentage of positive words</th>
<th>Percentage of negative words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1/73</td>
<td>1544</td>
<td>0.71</td>
<td>0.38</td>
</tr>
<tr>
<td>Patient 1/51</td>
<td>1364</td>
<td>0.35</td>
<td>0.60</td>
</tr>
<tr>
<td>HC group</td>
<td>1541 ± 1240</td>
<td>1.53 ± 0.52</td>
<td>0.61 ± 0.51</td>
</tr>
<tr>
<td>BDC group</td>
<td>1461 ± 1662</td>
<td>1.7 ± 1.80</td>
<td>0.7 ± 0.56</td>
</tr>
<tr>
<td>NC group</td>
<td>1499 ± 2226</td>
<td>1.5 ± 1.56</td>
<td>0.90 ± 0.52</td>
</tr>
</tbody>
</table>

**Table 4. Proportions of neutral, pleasant, and unpleasant memories across both phases of testing**

<table>
<thead>
<tr>
<th>Patient group</th>
<th>Percentage of neutral memories</th>
<th>Percentage of pleasant memories</th>
<th>Percentage of unpleasant memories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1/73</td>
<td>80</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>Patient 1/51</td>
<td>20</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>HC group</td>
<td>30 ± 20</td>
<td>30 ± 20</td>
<td>0 ± 20</td>
</tr>
<tr>
<td>BDC group</td>
<td>30 ± 30</td>
<td>30 ± 30</td>
<td>0 ± 30</td>
</tr>
<tr>
<td>NC group</td>
<td>30 ± 10</td>
<td>30 ± 10</td>
<td>0 ± 10</td>
</tr>
</tbody>
</table>

Entries show means and SDs.