A Reflective Case Review: Re-learning Handwriting After a Traumatic Brain Injury

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Background

- Traumatic Brain Injury (TBI) occurs at any age and has a devastating effect on children, young people and their families
- Range of deficits result including physical, cognitive and psychosocial (Anderson & Catroppa 2006)
- Handwriting is a common reason for referral and is a meaningful occupation for children referred to community services (Dunford et al 2005) but features less frequently for children in rehabilitation
- This case study reflected on a child’s journey following a TBI to re-learn handwriting

Methods

- Retrospective, single case-study of 14 year old Sue (pseudonym) with right hemiplegia (previously right dominant)
- Goals set using Canadian Occupational Performance Measure (COPM) and Goal Attainment Scale-light (GAS)
- Other outcome measures included handwriting samples and Assessment of Motor and Processing Skills (AMPS)
- Evidence-based occupational therapy intervention (Hoy et al 2011) programme of 12 weeks devised based on Sue’s goal to re-learn to write with her right hand
- Consent gained from Sue and her mother
- Approval granted by The Children’s Trust Research Committee

Results

- Sue was able to re-learn to write using her right hand (see Figure 1)
- Improved handwriting (size/letter formation/spacing) as judged by her therapist and mother
- However, Sue’s COPM did not reach clinical significance (see Table 1)
- Sue re-learnt to write with her dominant hand despite her hemiplegia within 12 weeks

Table 1: Before and after assessment results

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Admission</th>
<th>Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPM</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(performance and satisfaction)</td>
<td>(performance and satisfaction)</td>
<td></td>
</tr>
<tr>
<td>AMPS motor</td>
<td>0.04</td>
<td>1.48</td>
</tr>
<tr>
<td>(below average)</td>
<td>(low average)</td>
<td></td>
</tr>
<tr>
<td>AMPS process</td>
<td>0.54</td>
<td>0.54</td>
</tr>
<tr>
<td>(low average)</td>
<td>(low average)</td>
<td></td>
</tr>
<tr>
<td>GAS</td>
<td>Baseline Level</td>
<td>Level Achieved: ‘A lot more’</td>
</tr>
<tr>
<td>“Sue can hold a thick felt tip pen in right hand with support to place the felt tip in her hand and guide movement of the felt tip”</td>
<td>“Sue is able to pick up a pen/ pencil and write sentences with her right hand using small letters”</td>
<td></td>
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<tr>
<td>Handwriting Samples</td>
<td>Large, poorly formed, and poorly spaced script (see samples)</td>
<td>Letter size significantly reduced with improved formation and spacing</td>
</tr>
</tbody>
</table>

Conclusion

- Relearning to write following a TBI showed dramatic improvements in a short time compared to children commonly referred to community services
- Specific handwriting practice improved performance as supported by the evidence
- Newly acquired cognitive, emotional and self-identity changes influenced Sue’s evaluation of her progress

References


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