Psychological Effects of Stroke

26 June 2019 / Dr Claire Whitelock, St George’s Hospital and Wandsworth Community Neurorehabilitation Team

With thanks to Dr Ndidi Boakye, Principal Clinical Neuropsychologist

Excellence in specialist and community healthcare
Agenda

- Who is affected by Stroke?
- Neuropsychological and behavioural sequelae of Stroke
- Assessment of psychological effects of Stroke
- Psychological interventions for Stroke
Some Stroke Statistics…

- Stroke occurs approximately 152,000 times a year in the UK; that is one every 3 minutes 27 seconds.

- First-time incidence of stroke occurs almost 17 million times a year worldwide; one every two seconds.

- There are over 1.2 million stroke survivors in the UK.

- 3 in 10 stroke survivors will go on to have another stroke or TIA.

- Around 1000 people under the age of 30 have a stroke each year.

- More than 250,000 people live with disabilities caused by stroke.

- Almost 1 in 4 men and 1 in 5 women aged 45 can expect to have a stroke if they live to 85.
How are people affected by Stroke?

- Physical
- Sensory
- Cognitive
- Behavioural
- Emotional
How are people affected by Stroke?

These impairments may have **functional consequences** for all domains of daily living:

- Personal
- Family
- Occupational
- Social
Brain pathology
- Stroke, head injury, etc

Family/social support

Cognitive
- Memory
- Perception
- Language
- Attention
- Executive

Affect
- Depression
- Anxiety
- Anger
- Confidence
- Motivation

Insight

Physical
- Hemiplegia
- Sensory loss
- Dysarthria
- Pain

Loss

Functional consequences
- Work, Relationships, Activities of Daily Living
- Leisure, Driving etc.

Pre-morbid factors
- e.g. coping style

Evans (2006), in Wilson, Gracey, Evans and Bateman, (2009)
Cognitive Changes

Brain pathology
- Stroke, head injury, etc
- Pre-morbid factors (e.g., coping style)

Cognitive
- e.g., Memory
- Perception
- Language
- Attention
- Executive

Affect
- e.g., Depression
- Anxiety
- Anger
- Confidence
- Motivation

Physical
- e.g., Hemiplegia
- Sensory loss
- Dysarthria
- Pain

Functional consequences
- e.g., Work, Relationships, Activities of Daily Living
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Evans (2006), in Wilson, Gracey, Evans and Bateman, (2009)
Cognition

- Cognitive changes are very common after stroke (~80%).

- The most commonly reported problems are:
  - Memory
  - Concentration
  - Speed of information processing

- Commonly changes in **executive functioning** and **visuo-spatial/ visuo-perceptual** processing also.

- Can be very obvious (e.g. aphasia, neglect) or more subtle (e.g. intellectual underfunctioning, visuo-perceptual difficulties).
Cognitive Assessment

Areas of assessment:
- Intellectual abilities – current and premorbid
- Attention
- Memory
- Language
- Visual skills
- Executive functions
Intellectual abilities

- **Similarities**
  
  “In what way are **food** and **petrol** alike?”
  
  “In what way are **allow** and **restrict** alike?”
Intellectual abilities
Intellectual abilities
Attention & working memory

- **Auditory attention span**: e.g. Digit-span
  
  3-5-1
  4-6-5-9
  7-5-8-2-4
  9-2-6-5-1-0
  8-3-4-1-7-9-2
  1-7-6-2-5-4-9-3
Attention & processing speed
Visual skills
Visual skills & executive functions
Executive functions

The Stroop Test

[Image of the Stroop Test matrix]
Cognitive Assessment vs. Functioning

- Formal cognitive assessment is not always appropriate/necessary
- **Joint sessions** with the MDT
- **Observations** and feedback from nurses and MDT
- Assessment findings are treated as a “hypothesis”
- Even severely amnesic individuals can lead a relatively independent life with the use of appropriate strategies
Intervention

Provide cognitive and behavioural strategies for managing any deficits

- Use the strengths to support weaknesses.
- Provide explicit and clear feedback about the results of testing.
- **Compensatory strategies**
- Provide feedback about their progress through using strategies (positive reinforcement).
Emotional Changes

- Brain pathology: Stroke, head injury, etc.
- Pre-morbid factors: e.g. coping style
- Cognitive: e.g. Memory, Perception, Language, Attention, Executive
- Affect: e.g. Depression, Anxiety, Anger, Confidence, Motivation
- Physical: e.g. Hemiplegia, Sensory loss, Dysarthria, Pain
- Functional consequences: e.g. Work, Relationships, Activities of Daily Living, Leisure, Driving etc.

Evans (2006), in Wilson, Gracey, Evans and Bateman, (2009)
Emotions

- **Depression** ~30% of stroke patients
- **Anxiety** ~30% of stroke patients
- **Emotional lability** ~10-20% stroke patients

The long-term impact of mood disturbance:
- Higher rates of mortality
- Long term disability – reduced engagement in physical and social rehabilitation
- Hospital readmission
- Suicide
- Increased carer burden

Patients consistently report that they feel mood difficulties aren’t noticed or treated.
Assessment of emotional changes

- **Formal measures plus clinical interview**

### Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week. Don’t take too long over your replies: your immediate is best.

<table>
<thead>
<tr>
<th>D</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Definitely as much</td>
</tr>
<tr>
<td>1</td>
<td>Not quite so much</td>
</tr>
<tr>
<td>2</td>
<td>Only a little</td>
</tr>
<tr>
<td>3</td>
<td>Hardly at all</td>
</tr>
<tr>
<td>0</td>
<td>Not at all</td>
</tr>
<tr>
<td>1</td>
<td>Occasionally</td>
</tr>
<tr>
<td>2</td>
<td>Quite Often</td>
</tr>
<tr>
<td>3</td>
<td>Very Often</td>
</tr>
<tr>
<td>0</td>
<td>Not at all</td>
</tr>
<tr>
<td>1</td>
<td>I feel tense or 'wound up':</td>
</tr>
<tr>
<td>2</td>
<td>Most of the time</td>
</tr>
<tr>
<td>3</td>
<td>A lot of the time</td>
</tr>
<tr>
<td>0</td>
<td>From time to time, occasionally</td>
</tr>
<tr>
<td>1</td>
<td>Not at all</td>
</tr>
<tr>
<td>0</td>
<td>I feel as if I am slowed down:</td>
</tr>
<tr>
<td>1</td>
<td>Nearly all the time</td>
</tr>
<tr>
<td>2</td>
<td>Very often</td>
</tr>
<tr>
<td>0</td>
<td>Sometimes</td>
</tr>
<tr>
<td>1</td>
<td>Not at all</td>
</tr>
<tr>
<td>0</td>
<td>I still enjoy the things I used to enjoy:</td>
</tr>
<tr>
<td>1</td>
<td>I get a sort of frightened feeling like 'butterflies' in the stomach:</td>
</tr>
<tr>
<td>2</td>
<td>I get a sort of frightened feeling as if something awful is about to happen:</td>
</tr>
<tr>
<td>3</td>
<td>I have lost interest in my appearance:</td>
</tr>
<tr>
<td>0</td>
<td>As much as I always could</td>
</tr>
<tr>
<td>1</td>
<td>Not quite so much now</td>
</tr>
<tr>
<td>2</td>
<td>Definitely not so much now</td>
</tr>
<tr>
<td>3</td>
<td>Not at all</td>
</tr>
<tr>
<td>0</td>
<td>I feel restless as I have to be on the move:</td>
</tr>
<tr>
<td>1</td>
<td>As much as I always could</td>
</tr>
<tr>
<td>2</td>
<td>Not quite so much now</td>
</tr>
<tr>
<td>3</td>
<td>Definitely not so much now</td>
</tr>
<tr>
<td>0</td>
<td>Not at all</td>
</tr>
<tr>
<td>1</td>
<td>I can laugh and see the funny side of things:</td>
</tr>
<tr>
<td>2</td>
<td>Worrying thoughts go through my mind:</td>
</tr>
<tr>
<td>3</td>
<td>I look forward with enjoyment to things:</td>
</tr>
<tr>
<td>0</td>
<td>As much as I ever did</td>
</tr>
<tr>
<td>1</td>
<td>Rather less than I used to</td>
</tr>
<tr>
<td>2</td>
<td>Definitely less than I used to</td>
</tr>
<tr>
<td>3</td>
<td>Hardly at all</td>
</tr>
</tbody>
</table>
Assessment of emotional changes

Signs of Depression Scale
(Hammond, O’Keefe & Barer, 2000)

Does the patient sometimes look sad, miserable or depressed?

Does the patient ever cry or seem weepy?

Does the patient seem anxious, restless or anxious?

Is the patient lethargic or reluctant to mobilise?
Assessment of emotional changes

- **Neurological factors:**
  - Lesions to “limbic” structures involved in various aspects of emotion (e.g. orbito-frontal cortex, amygdala)

- **Psychological factors:**
  - Evaluating the *personal significance* of a situation or event (what has been *lost*?)
  - Evaluating the capacity to *cope* adequately with this event (*personal* coping / *family* coping?)
  - **Grief** process
7 Stages of Grief
(Modified Kubler-Ross Model)

**Shock**
- Initial paralysis at hearing the bad news.

**Denial**
- Trying to avoid the inevitable.

**Anger**
- Frustrated outpouring of bottled-up emotion.

**Bargaining**
- Seeking in vain for a way out.

**Depression**
- Final realization of the inevitable.

**Testing**
- Seeking realistic solutions.

**Acceptance**
- Finally finding the way forward.

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**Intervention**

- RCTs demonstrate that **antidepressants** (SSRIs) are effective in treating and preventing Post-Stroke Depression (Robinson & Jorge, 2016 – The American Journal of Psychiatry)

- Evidence for traditional **CBT** is inconclusive but patient’s may prefer this:
  - Fann et al. (2009) - More patients favoured physical exercise or counselling as a depression treatment than other treatment modalities.

- Grief **counselling**
Intervention

Help the patient explore the meaning of the injury and the affect on their own life, in order to achieve a sense of acceptance about what has happened

• What difficulties might they experience as a result of the changes (e.g. won’t be able to drive because of visual problems).

• Explore what this means to them personally (e.g. was driving a really important thing to them; does driving represent independence?)

• What does it mean to lose this skill?
Help the patient integrate a new sense of ‘self’ and align this with the old ‘self’.

- *Who am I?* … ‘I am still the same person but now I have to do certain things differently …’

- Reconstruct new meaning and integrate into new self image.

- Explore discrepancy between ‘*idealised*’ pre-brain injury identity and current identity

- Explore what is now important to the patient – is it realistic?
But also:

Taking the time to ask how someone is

...and really listening to the response.
Behaviour Changes

Brain pathology
- Stroke, head injury, etc

Cognitive
- e.g. Memory
- Perception
- Language
- Attention
- Executive

Affect
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- Anxiety
- Anger
- Confidence
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Physical
- e.g. Hemiplegia
- Sensory loss
- Dysarthria
- Pain

Pre-morbid factors
- e.g. Coping style

Functional consequences
- e.g. Work, Relationships, Activities of Daily Living
- Leisure, Driving etc.

Family/social support

Evans (2006), in Wilson, Gracey, Evans and Bateman, (2009)
Behaviour changes

- Disorders of behaviour are common after stroke and can interfere with individuals’ progress in rehabilitation and be distressing for those around them, e.g. –
  
- Aggression
- Disinhibition
- Impulsivity
- Distractibility
Assessment of behaviour

- Damage to emotional and behavioural control areas of the brain?
- Emotional impact of stroke (anxiety or depression)?
- A way to get needs met when cognitive and communication skills are reduced?
  - Pain, discomfort, nausea, hunger, thirst
  - Feeling afraid or threatened
  - A way of exerting independence, choice and control
  - A defensive reaction to being confronted with reality
  - Reaction to misunderstanding a situation
  - Frustration
  - Unable to remember why they are in hospital
  - Sensitivity to noise, temperature etc.
Determining needs

- The **ABC** approach:
  - **Antecedents** (what occurs before the behaviour, acting as a potential trigger?)
  - **Behaviour** (what happens during the behaviour, what does it look like exactly?)
  - **Consequences** (what are the immediate and delayed reactions of everyone involved?)
Intervention

- Help the person get their needs met a different way.

- Operant conditioning (reward the behaviour you want to see, ignore the behaviour you don’t)

- Whole-team approach and **consistency** is key!
Bringing it all together

Brain pathology
- Stroke, head injury, etc.

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Insight

Loss

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Questions