Improving Insight and Awareness in Brain Injury

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Learning Objectives

• Relate the anatomy and physiology of the pre-frontal cortex and frontal lobes to the clinical phenomenon of anosognosia.

• Identify and contrast two different models of awareness to support treatment planning.

• Describe at least 2 effective strategies to improve insight and awareness in brain injury.
Executive Function & Insight
Lobes of the Brain

- Frontal lobes comprise 20% of cortex
- Function as “CEO” of the brain
Prefrontal Cortex Roles and Responsibilities

- Controls impulses and emotions
- Forms judgments
- Helps people understand one another
- Engages in abstract thinking and analysis
- Regulates behavior
- Predicts outcomes
### Metacognition - “Thinking about thinking”

<table>
<thead>
<tr>
<th><strong>Knowledge</strong></th>
<th>Knowing what one does and doesn’t comprehend and understanding the factors that affect cognition</th>
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<tbody>
<tr>
<td><strong>Planning</strong></td>
<td>Establishing a strategy and determining appropriate use of resources for the current task</td>
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<tr>
<td><strong>Monitoring</strong></td>
<td>Gauging one’s current performance on a task, identifying and correcting errors</td>
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<tr>
<td><strong>Evaluating</strong></td>
<td>Assessing one’s performance and identifying areas that can be improved in the future</td>
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Anosognosia

- A deficit of self-awareness
- Also known as a “lack of insight”

- Refers to a condition in which a patient is unaware of deficits resulting from a brain injury
Anosognosia

• “I’m ok to drive. Ninety percent of driving occurs straight in front of you…”
  – RS, a 60 y/o with severe left neglect and left homonymous hemianopsia.

“Your mailboxes are not set up like USPS. Had the names been to the right side, I would have scored 100%…”
  – DH, 58 y/o rural mail carrier with severe left neglect after finding out his score on a mail delivery task was 56% accuracy.
I have no need to take my self-awareness medication because I'm completely awesome.
Self-awareness deficits in brain injury have been reported as occurring in up to 97% of patients with Traumatic Brain Injury.

What’s in YOUR tool belt?
Treatment for Awareness Deficits

Crosson, et al, 1989
Toglia and Kirk, 2000

Intellectual
Emergent
Anticipatory

Knowledge
Online awareness

NEURO INSTITUTE
Model of Awareness

- **Anticipatory Awareness**: Patient is able to anticipate when an impairment will affect performance and implement strategies.

- **Emergent Awareness**: Patient recognizes when an impairment affects their ability as it occurs.

- **Intellectual Awareness**: Patient may be aware a problem has occurred, but is unable to identify it.

Crosson, et al., 1989
Dynamic Comprehensive Model of Awareness—Toglia and Kirk 2000

- Dynamic instead of hierarchic relationship
- Knowledge beliefs, task demands, and context of situation
- Distinction between knowledge and online awareness
  - Self knowledge—understanding of one’s strengths and limitations
  - Online awareness—metacognitive skills applied in the context of an activity

Toglia and Kirk, 2000
Models of Awareness

ANTICIPATORY

EMERGENT

INTELLECTUAL
(Self-Knowledge)

Online Awareness
Intellectual Awareness Deficits

- Trouble with understanding at the lowest level that difficulties exist with performing a particular activity
- Likely also have challenges with abstract reasoning and memory
- Not able to generalize knowledge from one situation to another

- AKA Deficits in Self-Knowledge
"Hi, this is Cindy! To ask me out, press 1. To break up with me, press 2. To tell me I'm cute, press 3...."
Training Intellectual Awareness

- Concrete language
- Education about personal brain injury
- Strengths and Weaknesses Lists
- Cued external compensatory strategies
- High rate of repetitions
External Compensatory Tools

- Journals
- Videotape review
- Social Stories
- Alarms
- Written daily schedule
- Sticky notes
• Significant deficits in memory provide the most significant barrier to developing Intellectual Awareness/Self-Knowledge

• May always require external cues from caregiver

• Training Caregivers is Very Important
Emergent Awareness Deficits

- Difficulty recognizing a problem while it is actually happening
- Trouble monitoring the connection between actions and environment
- Deficits at this level are the MOST FRUSTRATING to caregivers and clinicians
Anticipatory Awareness Deficits

• Unable to realize in advance that a particular deficit might cause a problem in the future

• Cannot predict that a learned compensatory strategy could help AVOID a problem
On-line Awareness Deficits

- Term used to refer to the concepts of deficits in emergent and/or anticipatory awareness
- Idea that awareness deficits are task and context dependent
Training Techniques

- Corrective Feedback
- Compensatory Strategy Selection and Training
- Rating Scales
PATIENT COMPETENCY RATING SCALE (PCRS)

Prigatano, 1986
Patient Competency Rating
(Patient’s Form)


Identifying Information

Patient’s Name: ____________________________________________

Date: ______________

Instructions

The following is a questionnaire that asks you to judge your ability to do a variety of very practical skills. Some of the questions may not apply directly to things you often do, but you are asked to complete each question as if it were something you “had to do.” On each question, you should judge how easy or difficult a particular activity is for you and mark the appropriate space.

Competency Rating

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Can’t do</td>
<td>Very difficult to do</td>
<td>Can do with some difficulty</td>
<td>Fairly easy to do</td>
<td>Can do with ease</td>
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____  1. How much of a problem do I have in preparing my own meals?

____  2. How much of a problem do I have in dressing myself?

____  3. How much of a problem do I have in taking care of my personal hygiene?

____  4. How much of a problem do I have in washing the dishes?

____  5. How much of a problem do I have in doing the laundry?

____  6. How much of a problem do I have in taking care of my finances?

____  7. How much of a problem do I have in keeping appointments on time?
Features of the PCRS

• 3 available versions
  – Patient
  – Family Member
  – Clinician
• Utilizes 30 questions
• Rank from 1-5
• Max Score 150
• Easy to print and utilize
• Free on COMBI website

www.tbims.org
The Oreo Principle…
Patient Self-Evaluation

• **Before task:**
  - How difficult will this be?
  - Will I need to use any strategies?
  - What strategies should I use?
  - What problems might come up?

• **After task:**
  - How difficult was this for me?
  - How accurate was I?
  - How much help did I need?
  - What could I do differently next time?
Clinical Activities

- Videotape review
- Role play with other patients in a group
- Peer Counseling
- Cognitive obstacle course
- Community-based activities
COGNITIVE OBSTACLE COURSE

• Set-up A Pill/Medicine Box
• Respond To Email
• Alphabetical Filing
• Timed Testing
• Pack A Lunch Box
• Write A Note To A Teacher Or Friend
• Mailbox Sort
• Navigating Automated Answering Service
• Pay A Telephone Bill
• Pack Given A Scenario
COGNITIVE OBSTACLE COURSE
Teachable Moments

Provide opportunities for self-discovery of errors.
Additional Components of Training

• Set appropriate goals **WITH** the client

• Reduce strategies and control as increased safety and awareness is observed

• Educate family, friends and other caregivers
Increasing awareness can lead to lower self-esteem and increased incidence of depression.

Carroll & Coetzer, 2011
The fruits of our labor may be harvested after patients leave our programs…
Case Study

- Zach, 35 year old
- TBI in April 2016 due to motocross accident
- GCS of 11 in ER with positive loss of consciousness at scene
- Numerous fractures to scapula, ribs, clavical, and both arms
- Hospital course complicated by confusion, agitation and increased pain
- Required skilled therapy during post-acute rehab to facilitate increased self-awareness of related cognitive and emotional changes
Knowledge is POWER.

Francis Bacon
WITH GREAT POWER COMES GREAT RESPONSIBILITY...
KEY POINTS

• Self-awareness deficits affect almost all survivors of brain injury.
• Self-awareness is a complex skill of cognition (METACOGNITION).
• There are many different strategies to use during rehab.
• Improvements in self-awareness take time.


