Innovative Techniques to Address Functional Cognitive Deficits with Unclear Etiology

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Clinical Research Consortium Webinar
June 6, 2012

Conflict of Interest Statement

Neither I nor Braintrust Performance Services, LLC, has any vested financial interest in the provision of this lecture to the audience.

The content of this presentation does not represent the official position of any entities other than BPS, LLC.

Objectives

The Participant will:

1. Identify the difficulties involved in ascribing cognitive deficits to particular etiologies in the face of complex client presentations

2. Explore general trends of cognitive deficits as they pertain to “uncomplicated” mild head injury versus those found in behavioral health conditions

3. Describe an innovative multi-disciplinary, compensation-driven cognitive rehabilitation program which has shown promise in addressing functional cognitive deficits, regardless of injury etiology

Objective 1

The participant will identify the difficulties involved in ascribing cognitive deficits to particular etiologies in the face of complex client presentations.

Defining Functional cognitive deficits

- Functional cognitive deficits can be considered difficulties with daily function attributable to breakdowns in cognitive processes
- The processes involved in “cognition” are extremely complex, and there is rarely one subset of these processes that is directly responsible for functional deficits
- Rather, there are a combination of factors that must be taken into account

Factors contributing to Functional Cognitive Deficits

- In keeping with basic occupational therapy principles, functional cognitive deficits can stem from one or more of the following: the person, the environment, or the way a task itself presents.
- With proper training and preparation, the therapist can assist the client with the following:
  - Identifying and controlling environmental challenges to function
  - Completing a thorough task analysis and resulting adjustment of task demands
- This leaves person factors as likely the most problematic patient construct in regards to chronic functional cognitive deficits.

Functional cognitive deficits are Primarily driven by variables within the person

- What can be drivers of cognitive dysfunction within the person construct?
  - Elevated pain levels
  - Headache
  - Sleep disorders (including apnea)
  - Medication effects
  - Medical conditions
    - Both easily identifiable (cancer, MS, TBI) as well as non-traditional (metabolic, cardiac)
  - Learning disability/ADHD
  - Behavioral health concerns

Which of these person constructs is the hardest to objectively identify and clinically measure recovery?

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  - **Behavioral health concerns**

Why are behavioral health conditions different?

- Identification primarily dependent on client commission
  - Cultural, personality, professional factors affect this
- Diagnosis is generally generated from subjective data, not necessarily objective testing results
- Reliability of quality of treatment provision? (protocol-driven > interpersonal)
- Objective evidence of response to treatment?
- Variability of conditions from day to day?

Take-Home Clinical Message #1

- Both environmental and task factors can complicate cognitive performance, but a skilled clinician can identify and address these with relative ease
- There are no shortage of person factors that can affect cognitive performance, but of these, behavioral health conditions can be the most difficult to identify and treat in regards to improving functional cognitive performance on a day-to-day basis
- Behavioral health concerns can turn any traditional “uncomplicated” medical concern into a “complicated” one

Objective 2

Explore general trends of cognitive deficits as they pertain to “uncomplicated” mild head injury versus those found in behavioral health conditions.

Defining “uncomplicated” mild head injury

- For the purposes of this presentation, “uncomplicated” mild head injury is an injury that is:
  - Easily linked to a specific injury event
    - E.g., a fall, an MVA, an assault
  - Does not have significant medical comorbidities associated with it
    - E.g., no significant disruption of internal bodily processes, no significant body image concerns
  - Does not appear to have caused the patient to incur an unusual or unexpected amount of long-lasting emotional trauma because of the event itself or its effects
- Traditionally occurs in civilian (non-warzone) environment

General recovery trends

- "Uncomplicated" mild head injuries *generally* progress in a predictable fashion of recovery
  - Physical symptoms of post concussion syndrome decrease or are addressed via therapies/medications
  - Cognitive function comes back "on line" relatively quickly
  - Functional cognitive deficits that remain can be effectively addressed by education, compensation therapies, and continued support
- Either through natural recovery processes or effective, time- expedient therapy service provision, most mild head injuries should *not* result in devastating loss of quality of life because of cognitive breakdowns.

Disclaimer…I said, “most”

- As those of us involved in the CRC know, “most” doesn’t mean “all”
- Patients in the “miserable minority” of those with uncomplicated mild head injuries can continue to experience daily functional cognitive and emotional deficits into the chronic stage of injury
  - ….and that’s where most of us on this call come in to play our parts in assisting these patients!

But what happens when a mild head injury isn't "uncomplicated"

- The "complicated" mild head injury patient (mHI + specifically BH) is becoming more of a clinical reality
- Not solely the realm of clinicians working with active duty military
  - VA now has a significant population of "post-deployment syndrome" patients
    - Only going to become more significant as time goes on
  - Civilian "crossover" of these veterans will become more significant as well
    - You WILL see these men and women in your clinics

Realities of comorbidities in "complex" mTBI

- Along with a diagnosis of one or several mild head injuries, these patients will:
  - have multiple conditions and life circumstances that will compete for their cognitive resources and reserves
  - Present to you clinically with functional deficit profiles that are quite different from what you are accustomed to seeing in "uncomplicated" mTBI cases
  - Not respond in traditional ways to OT, SLP, NP, or PSY interventions because of these cognitive deficit profiles.
- These patients may fit into a "failure to thrive" category where functional deficits are present in almost all major occupational roles

Where are the cognitive deficits in our patients coming from?

- Intact cognition is the primary driver of functional and competent completion of the responsibilities of our daily roles…
  ...and *impaired cognition* is the primary driver of dysfunction in these roles
- Ascribing responsibility for functional deficits becomes especially relevant when we discuss these deficits in cognition
- As mentioned before, there are many potential culprits…
  - …but the comorbidity that seems to be the most frequent and problematic is the diagnosis of mild head injury (mHI) with behavioral health (BH) comorbidities

mHI vs. BH = All or None = Black and White?

- These cognitive deficits are most likely being influenced by *both* mHI and BH issues

- We must appreciate that there is a GREY AREA when it comes to identifying where cognitive deficits are coming from

The Grey *Matters*

- Keeping in mind this grey area, it ***is*** possible to make judgments as to which etiology is effecting cognitive performance more
  - …these judgments can then be used to help guide treatment
- We can also observe how those deficits respond to different mHI/BH interventions
  - …and use these observations to further our understanding of where they are coming from in the first place

The Grey *Matters* Illustrated

- The tables that follow stem from evaluation and treatment of close to a thousand patients with mHI
- Includes both complicated and uncomplicated mHI
- Includes both civilian and military populations

The Grey *Matters* Illustrated: anecdotal support

- These clinical observations have high clinical utility reported across active military treatment facilities
- Similar reactions across the spectrum of VA clinicians, as well as civilian practitioners
- Decisions re: locus of care and rehabilitation planning informed by these clinical observations have been successful

Mild Head Injury Clinical Cognitive Deficits	Behavioral Health Clinical Cognitive Deficits
May be relatively stable from day to day	May be more variable from day to day (especially attention)
General trend of improvement is observable, especially with cognitive rehabilitation	General stagnancy; little improvement of symptomology even with cognitive rehabilitation
Focusing on a task may be challenging but achievable	Focusing on a task may be extremely difficult for any meaningful length of time
May have ability to identify when they have lost focus on a task and self-correct	May have to be cued to the fact they have lost focus on a task
Frustration/irritation may be the primary emotional reaction to decreased cognition	Reaction to poor cognitive performance may be variable in scope and intensity
Can initiate, and work on a task with consistent effort	May have difficulty initiating task; effort may be variable and difficult to predict
Limits of Cognitive Reserve Capacity can be reliably observed; improvements in CRC measured in units of time/decrease in self-rated mental fatigue follow a general trend of improvement	Cognitive Reserve Capacity quickly depleted; with little growth measured over time, regardless of cognitive reconditioning efforts

Mild head Injury Clinical Cognitive Deficits	Behavioral Health Clinical Cognitive Deficits
Memory: • Encoding may be primarily affected • Retrospective should be intact • Minimal cues required to recall recent events • May be easily cued to prospective tasks which have been forgotten; frustration with self evident upon recalling them	*Memory*: • Both encoding and retrieval may be impaired • Retrospective may be impaired • Max cuing required to recall recent events; may be unable to do so • Prospective tasks may be forgotten completely
May exhibit decreased processing speed, but not significantly so	Processing speed may be significantly slower than norm; much slower than seen in mTBI
Cognitive compensation strategies more likely to be embraced and enacted effectively	Cognitive compensation strategies may be rarely be enacted by patients; when they are, the may not be applied
Generalization/transference of cognitive compensation training should begin over the course of 4-6 sessions	Generalization/transference of cognitive compensation training will be difficult to achieve; pt. may not have the emotional reserves to enact them

Mild Head Injury Clinical Cognitive Deficits	Behavioral Health Clinical Cognitive Deficits
May be more aware of and able to articulate how their deficits affect them (e.g., "I leave my keys in my room all the time," "I forgot my marriage anniversary," "I forget to pay my bills")	May generalize how their deficits affect them; may have difficulty identifying more than a few general problems (e.g., "I can't remember names" or "I forget things a lot")
Deficits are challenged by participation in real-world contexts, and growth may occur 2/2 opportunities to enact cognitive strategies	Deficits may NOT be challenged by participation in real-world contexts 2/2 self-limiting behavioral health patterns; little growth may occur because of this
Deficits may be more similar to mild stroke in presentation; specific areas of dysexectuive function amenable to targeted strategy usage	Deficits may more similar in functional presentation to anoxic injury, CNS cancer with chemo/radiation, encephalitis; global cognitive deficits present
Some types of somatosensory data may over*load* processing systems; cause frustration • Visual and auditory stimuli most distracting • Tactile, gustatory, olfactory sensations usually not a significant distracters	Any somatosensory data may over*whelm* processing systems; causes shutdown or acting out • Wind on skin, strong odors, etc. can derail all mental functions

What you should do with the Grey *Matters* Illustrated Tables

- Keep in mind that these are non-standardized clinical observations
- Use these as a guide to help sharpen and develop your own clinical intuition about the etiology of functional cognitive complaints
- Use them as a way to stimulate discussion among your colleagues

What you should **not** do with The Grey *Matters* Illustrated Tables

- You should *not*:
  - …make single-service judgments on deficit etiology based on them
  - …consider them infallible, because there are always outliers
  - …forget that cognitive deficit etiology occurs along a continuum between mild head injury and BH, and rarely is it completely one or the other

Take-home Clinical Message #2

- Even if you are a civilian, you will most likely see patients with mild head injury and complex comorbities in your practice at some point.
- Many of these patients will have functional deficits which may be driven by a complex interplay between behavioral health concerns and mild head injury.
- Careful observation of the characteristics of these deficits will help to inform clinical service provision in a team-based rehabilitation setting.

Objective 3

- Describe an innovative multi-disciplinary, compensation-driven cognitive rehabilitation program which has shown promise in addressing functional cognitive deficits regardless of injury etiology.

Thus Far….

- …we've established that there are differences in the functional cognitive deficit profile of uncomplicated mHI and that of mHI complicated by behavioral health comorbidities
- …we've identified trends that can be observed that may help identify the primary drivers of that cognitive dysfunction
- …we've maintained that these patients are likely to be in your clinic at some point
- But what we haven't done is discuss how to address these functional deficits clinically

Current Clinical Difficulties of Cognitive rehabilitation

- Reimbursement issues?
  - It is extremely difficult to justify compensation for cognitive rehabilitation services from insurance companies
    - Many point to lack of definitive empirical evidence in the literature that it is successful
- Level of clinical expertise available in the clinic?
- Intra-facility scope of practice concerns?
  - Whose job is it to do cognitive rehabilitation in general?
  - **Whose job is it to do cognitive rehabilitation when its not clear where the deficits are coming from in the first place?**
- Because of all of the above, it can be difficult for management to justify dedicating staffing resources to cognitive rehabilitation programming

Cognitive Compensation Curriculum (3c) Program

- In response to these and other clinical concerns, I created a program that maximized our ability to:
  - Reach the greatest number of patients possible with the most streamlined utilization of our clinical resources
  - Match best practice principles from the cognitive rehabilitation literature to clinical service provision
  - Network with a number of behavioral health service programs within my institution to increase patient referrals to this program and therefore increase productivity (by capturing patients to whom we would not have otherwise had access)

3c Program: Inclusion Criteria

- Patients are referred to the program on the basis of the presence of “functional cognitive deficits” rather than what diagnoses they may carry
- I conduct a thirty-minute interview:
  - Establish if his or her functional deficits match topics we cover in 3C
  - Determine if the patient will work well within a small group dynamic
  - Determine interest in following through with the program
- **Caregivers are highly encouraged to attend!**

3C Program: Basics

- Patients move through four, 90-minute small-group educational sessions each Friday as a monthly cohort:
  - *Session 1:* Cognitive Deficits and Their Effect on Interpersonal Communications
  - *Session 2:* Increasing Frustration Tolerance and Anger Management Issues
  - *Session 3:* Everyday Memory Solutions
  - *Session 4:* Setting Up Your Environment for Success

3c Session 1:
Cognitive Deficits and Their Effect on Interpersonal Communications

- **Targeted Audience**
  - Patients who have difficulty finding the right words to say
  - Patients with difficulty organizing their thoughts and saying what they want to
  - Patients who report friction in relationships because they cannot remember what people say or ask them to do
- **Included Topics**
  - Word finding deficits
  - Explanation of cognitive processing (specifically verbal communication and encoding of spoken information)
  - Techniques to increase ability to encode
- **Moderators**
  - Occupational therapy
  - Speech & Language Pathology

3C Session 2:
Increasing Frustration Tolerance and Anger Management Education

- **Targeted Audience**
  - Patients who report/demonstrate difficulty tolerating frustration especially from “little things”
  - Patients with anger management issues
- **Included Topics**
  - Understanding frustration as the antecedent to anger
  - Frustration Tolerance Scale training; education on the cyclical nature of anger
- **Moderators**
  - Occupational Therapy
  - Social Work

3c Session 3:
Everyday memory Solutions

- **Targeted Audience**
  - Patients who report forgetting things constantly, such as appointments, other tasks, personal items at home, things people ask them to do, etc.
- **Included Topics**
  - Explanation of cognitive processing;
  - Introduction to assistive devices (“cognitive prosthetics”)
  - Basic training on currently owned assistive devices/smart phones.
- **Moderators**
  - Occupational Therapy
  - Assistive Technology

3c Session 4:
Setting up the Environment for success and 3C Wrap up

- **Targeted Audience**
  - Patients who experience cognitive deficits in a variety of environments and contexts
- **Included Topics**
  - Reducing emotional and physical distractions
  - Planning ahead for difficult tasks, etc.
- **Moderators**
  - Occupational Therapy

Thus far (+ disclaimer)

- We have had 3 monthly cohorts go through the 3C program
- Approximately 12 patients (+3 caregivers present)
- 70% have completed all four sessions
- 2 patients have asked to return to the next month's program for further exploration of/compensation techniques for their concerns
- These data are anecdotal and represent neither official statistics nor are they representative of any organization or medical system

Take home clinical message #3

- It is possible to create a resource-efficient program in which to address functional cognitive deficits for patients with complex comorbidities
- These programs should be presented in a manner which addresses best practice concepts in the cognitive rehabilitation literature, those being:
  - Education about brain injury and cognitive function, as well as establishment of a positive expectation of recovery
  - Focus on the effective and interactive provision of compensation strategies
  - Multidisciplinary in nature
- In addition, the presenter strongly recommends inclusion of the caregiver or life partner in the intervention program

In conclusion

Today, we've:

- Discussed the difficulties involved in ascribing cognitive deficits to particular etiologies in the face of complex client presentations
- Explored general trends of cognitive deficits as they pertain to "uncomplicated" mild head injury versus those found in behavioral health conditions
- Described an innovative multi-disciplinary, compensation-driven cognitive rehabilitation program which has shown promise in addressing functional cognitive deficits regardless of injury etiology

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