Incorporating Evidence-based Approaches in Treating Processing Speed and Memory Deficits in MS into the Clinic

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What can you do in your practice or clinic using evidence based techniques?

Outline

- Assessing deficits
- Team approach
- Nuts and bolts of evidence based treatment
- Clinic practicality
Outline

• Assessing deficits
• Team approach
• Nuts and bolts of evidence based treatment
• Clinic practicality

Assessing Deficits

• Identify deficits that interfere with the person’s ability to function in daily life

• Ensure that the client is performing activities of daily living independently and safely.

• Ensure that the client’s treatment is functionally based and holistic in scope.
Assessing Deficits

• Identify past and current level of functioning
  – Self Care
  – Driving
  – Financial Management
  – Medication Management
  – Meal Preparation
  – Work
  – Leisure/hobbies

• Estimate prognosis and rehabilitation potential

Assessing Deficits

• Assess disorders of:
  – Visual processing
  – Attention
  – Memory
  – Executive function skills
  – Psychosocial
  – Behavioral
  – Awareness issues

BICAMS or MACFIMS
Client Interview:
Examples of questions-

• What cognitive changes [changes in thinking] have you noticed since your diagnosis? What changes [in thinking] have your family noticed?

• Conduct an interview and develop the client’s story- lifestyle, life stage, health status, have the client describe their life in terms of a chapter in a book

• Explore client’s support system - connections with neighbors, with the community

Client Interview:

• Self report may not be an accurate assessment of deficits

• Include significant other or caregiver in the interview process
Client Interview:

Provide family education & training

- Interventions help but need to be utilized with family support

Outline

- Assessing deficits
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- Nuts and bolts of evidence based treatment
- Clinic practicality
Team Approach

- Collaborate with an interdisciplinary team to ensure that all important issues have been identified.
- Give client/family feedback on assessment results using basic language and giving examples of how deficits may impact everyday life situations.
- Prioritize problem areas and discuss areas of strength.
- Integrate the client’s priorities and goals into the treatment plan.
- Create Goals: Short term & long term goals.

Team Approach

- Clients provided treatment in both an individual and small group format.
- Group members provide support to one another and share ideas, strategies and advice with peers.
- Individual sessions include training in self generated memory strategies for encoding of new information, generalization of compensatory strategies and energy conservation techniques.
Team Approach

Cognitive Rehabilitation Approach

- Incorporate client and family goals.
- Identify patient’s strengths and deficits
- Identify strategies that might address the client’s challenges, and be easily applied to real life situations
- Improve functional attention through group treatment by managing external and internal distractions.

Moving toward treatment

- Where are you?
  - Identified the big picture through interviewing
  - Identified strengths and weaknesses for the client
  - Identified strategies that might be effective
- Next step
  - Team decides on order of treatment if there is more than one deficit to treat
  - Begin treatment
Outline

• Assessing deficits
• Team approach
• Nuts and bolts of evidence based treatment
  – Modified Story Memory Technique (mSMT)
  – Stylistic Memory Enhancement (SME)
  – Speed of Processing Training (SPT)
• Clinic practicality

Modified Story Memory Technique (mSMT)

Class 1 Evidence


mSMT

Decades of research shows that using Context and Imagery significantly improves new learning and memory

• Context
  The parts of a writing that surround a word or passage that can throw light on its meaning

• Imagery
  Taking a group of words and converting them to pictures

mSMT

• 10 sessions
  – 2x per week for 5 weeks
  – 45-60 minutes in duration

• Two skills taught
  – Imagery (sessions 1-4)
  – Context (sessions 5-8)

• Generalization
  – How you use skills in daily life (sessions 9 and 10)
mSMT

Session 1-4 Imagery

Instructions

• Each story contains Capitalized words to remember
• Create mental images of each story line
• Picture the Characters, setting, etc.

*the context is provided- teaching imagery

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**Story Example**

**skill: imagery**

Mr. Jones pulled a fresh APPLE from a tree. This made him think of his childhood summers with the flowers in BLOSSOM and his mother churning BUTTER sitting on a CHAIR drinking COFFEE. Mr. Jones was a DIAMOND salesman but his father worked in a FACTORY using a pitch FORK and a HAMMER. On Saturdays his mother would KISS him and send him to the MARKET. The goods there reminded him of a PALACE. On Sundays he went to church to visit his PRIEST making sure to get a SEAT in the first row. One day Mr. Jones’ father left boarding a STEAM boat with a TICKET that his WIFE had bought. Her BETRAYAL by not using DISCRETION in their personal lives led him to mistrust members of the opposite GENDER.
mSMT

- Free Recall- List all of the Capitalized words

- Cued Recall
  - Contextual Cues
  - Semantic Cues

mSMT

- Guidance for Imagery
  - concentrate on forming a mental image of a chunk of the story
  - several pieces of information in 2 images
  - verbal information transformed into pictures
mSMT

Session 5-8 Context

Instructions

• Make up story using a provided list of words
• Create easy to visualize story

*Continue using imagery – adding meaningful context.

List Example

skill: context / organization

<table>
<thead>
<tr>
<th>AUTOMOBILE</th>
<th>MOTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOTTLE</td>
<td>PHYSICIAN</td>
</tr>
<tr>
<td>CASH</td>
<td>PUPIL</td>
</tr>
<tr>
<td>CHURCH</td>
<td>SKIN</td>
</tr>
<tr>
<td>CORN</td>
<td>STRENGTH</td>
</tr>
<tr>
<td>DOOR</td>
<td>TREE</td>
</tr>
<tr>
<td>FLOOD</td>
<td>WOMEN</td>
</tr>
<tr>
<td>GARDEN</td>
<td>ADAGE</td>
</tr>
<tr>
<td>HOTEL</td>
<td>COMPETENCE</td>
</tr>
<tr>
<td>LETTER</td>
<td>ESSENCE</td>
</tr>
</tbody>
</table>
Sunday after CHURCH I need to take my AUTOMOBILE to the bank to get CASH for a BOTTLE of wine.
Sunday after ______ I need to take my ______ to the bank to get ______ for a ______ of wine.

mSMT

- Guidance for Context and Imagery
  - keep the story simple
  - basic ideas and concepts
  - chunk several target words with meaningful information
Example of poor context:
There was SNOW on the SIDEWALK next to the LAWN.

Example of more effective context:
In the winter, the green LAWN was covered in SNOW from shoveling the SIDEWALK.
mSMT

Feedback from Clinicians

• Repeating sessions 3 and 4 for extra practice with imagery
• Repeating sessions 7 and 8 for extra practice with context

mSMT

Adaptations clinicians have made

Making my own list of very concrete words and presenting an example - in early session 5:

HOUSE   CAR   PENCIL   TIRE   RIBBON

When I started the CAR and pulled away from my HOUSE, I realized that my TIRE was flat. When I looked at it, I saw a PENCIL sticking out of the tire- I grabbed the pencil and stuck it in the RIBBON of my hat.
mSMT

Feedback from Patients

- Still use the techniques in daily life
  - shopping lists, chores, schedules
  - alleviates some stress & worry about
    forgetting and missing appointments

mSMT

Practical Considerations

- Spanish and Chinese Languages

- Group Administration
  Not computerized, uses flash cards
  and word processing program.
Stylistic Memory Enhancement


Cognitive Rehabilitation

Unique techniques

• Various techniques are out there to improve memory

• We have data that shows they improve the memory abilities of persons with MS

• Techniques are:
  – Self Generated Learning
  – Spaced Learning
  – Retrieval practice
• All of the techniques utilized in Stylistic Memory Enhancement are evidence based.

• Dr. Yael Goverover discussed each

Stylistic Memory Enhancement

• 8 Sessions- with Homework
  2- Education about Memory vs. other aspects of cognition
  2 - Self Generated learning
  2 - Spaced learning
  2 - Retrieval practice
Stylistic Memory Enhancement

- Focus is improving everyday life
- Ideally, involve a family member to use the techniques

Speed of Processing Training

Research in Aging population


Speed of Processing Training

Aging literature

Shown to improve everyday life activities

Long Lasting effects- up to 10 years

• 10 session computerized PS treatment
  – Laptop administration
  – Highly automated
  – Used extensively in normal aging
    • Karlene Ball and colleagues
      University of Alabama at Birmingham
Speed of Processing Training

• Level I
  - Target Discrimination

• Level II
  - Discrimination task + simultaneous location of a peripheral target

• Level III
  - Selective attention training

SPT: Level I

• Target Discrimination
  • Single task of increasing complexity
    – Target present or absent?
    – What is the target (car or truck)?
    – Is each target the same or different from each other?

  • Black and white image
    – Task becomes faster and more complex as participant can perform the task
    – Patient progresses to level 2 when he/she can perform this level at 75% accuracy at an exposure duration of 17 ms
Present or Absent
Was there an object inside the white box?

YES  NO
Was there an object inside the white box?

YES  NO

Identify
Which object was inside the white box?
Same or Different
Were the objects the same or different?

SAME  DIFFERENT

SPT: Level II

• Discrimination task in level 1 + simultaneous location of a peripheral target
  – Task demands increase as participant becomes more proficient:
    • Discrimination task – as in Level I
    • Peripheral task: increasing the distance of the peripheral target from the center target
  
• Repeated until performance of both center and peripheral tasks is 75% accurate at 50ms or less
Divided Attention

Present or Absent
Was there an object inside the white box?

YES  NO
On which spoke was the outside object located?

Divided Attention

Identify
Which object was inside the white box?
On which spoke was the outside object located?

Divided Attention

Same or Different
Were the objects the same or different?

SAME
DIFFERENT
SPT: Level III

- Selective attention training
  - Locate peripheral target embedded among distractors
  - Begins with:
    - Peripheral target near center
  - When the participant can perform the task 75% of the time, task becomes more demanding
  - Peripheral target further from center
    - Training continues until 75% correct at exposure duration of 120 ms with peripheral targets at most extreme position
Selective Attention

Present or Absent
Was there an object inside the white box?

YES  NO
On which spoke was the outside object located?

Selective Attention

Identify
Which object was inside the white box?
On which spoke was the outside object located?

Selective Attention

Same or Different
Were the objects the same or different?

SAME  DIFFERENT
Summary

- 3 treatment protocols that target specific deficits.
  - Modified Story Memory Technique (mSMT)
  - Stylistic Memory Enhancement (SME)
  - Speed of Processing Training (SPT)
Outline

• Assessing deficits
• Team approach
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• Clinic practicality
  – Insurance
  – Bigger picture

Clinic Practicality

• Insurance

  - reimbursement possible using proof of efficacy
Clinic Practicality

• Bigger Picture

  - Cognitive rehabilitation success needs a multidisciplinary team approach

  - Interventions that target specific deficit areas can be a part of the process

Clinic Practicality

Cognitive rehabilitation has many components

  Family involvement
  Individual needs
  Vocation
  Psych / Drug issues

All aspects of a clients life need to be considered in order to have a successful outcome.
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