Mild Cognitive Impairment: More Than Misplacing Your Keys

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MCI: More Than Misplacing Your Keys

Following this presentation, SLP’s will be able to:

- define mild cognitive impairment and describe the common signs and symptoms that affect function.
- determine which standardized assessments can be used in diagnosis and effective treatment interventions.
- implement a mild cognitive impairment program in their own center.

Mild Cognitive Impairment (MCI)

Those with MCI exhibit signs and symptoms that are between the cognitive capacity expected in healthy aged adults, regardless of age or education level, and the types of cognitive decline observed in diagnosed dementia.


Diagnosing MCI

Typically MCI is diagnosed by excluding other conditions that may be causing noted signs and symptoms.

A MCI diagnosis can be confirmed by a physician after an MRI.
MCI Diagnostic Criteria

- Presence of memory problem, preferably confirmed reported by a significant other, caregiver or knowledgeable informant.
- Has the capacity for cognition of a normal aging adult with similar education level and socioeconomic status.
- Basic ADL task performance is intact, but may complain of having difficulty performing certain aspects of tasks.
- Does not have the diagnosis of dementia; if signs of depression exist, a form of dementia not MCI may be present.
- A MMSE score greater than 23 for individuals with a high school education, or greater than 17 for individuals with less than a high school education.

MCI and Dementia

- Certain types of MCI change to a status of "dementia of the Alzheimer’s type" after just a few years.
- Other types of MCI go onto develop other forms of dementia.
- And there is a type of MCI where patients remain at that level indefinitely.

Types of MCI

- How the impairments differ between one individual to another helps the clinical staff distinguish the different sub-types of MCI in their resident population.
- Through a greater understanding of the sub-types of MCI, a more comprehensive medical plan can be created to give this group the greatest chance for improvement.
Early Detection & Intervention

- Although no specific treatments for MCI exist, early detection has important implications.
  - It allows for the identification and treatment of reversible etiologies, such as depression or drug side effects.
  - Counseling and recommendations for support services can be offered to the individual and their family, providing ample opportunity to plan for and implement strategies to accommodate developing MCI problems.
  - Available therapies can be delivered and new treatments initiated as they become available.
  - Most importantly, when routine cognitive screening is provided and cognitive decline is identified at an early stage, interventions may delay or even halt progression to dementia.

MCI Subtypes

- There are currently 4 defined MCI subtypes:
  - Pure Amnesic
  - Multiple Domain
  - Non-Amnesic
  - Worried Well

MCI Subtype: Pure Amnesic

- A Pure Amnesic MCI patient presents with cognitive impairments that only include memory.

Examples:

- The patient has forgotten his or her name, or the names of his or her family members or close friends.
- The patient does not remember where the dining room is, or if he or she took their medication.
- The patient falls, and cannot remember the steps necessary to pull him or herself up again.
MCI Subtype: Multiple Domain

- A Multiple Domain MCI patient presents with cognitive impairments in **at least 2 domains** of cognitive function that **may or may not** include memory.
  - Cognitive impairments may include but are not limited to:
    - Language
    - Memory
    - Attention
    - Executive Function
    - Complex Processing
    - Visual Spatial Function
- Example: An individual may present with difficulty balancing a checkbook (executive function & complex processing) as well as difficulty remembering which bills had already been paid that month (memory).

MCI Subtype: Non-Amnesic

- A Non-Amnesic MCI patient will present with cognitive impairments that **do not include memory**.
  - Cognitive impairments may include but are not limited to:
    - Language
    - Attention
    - Executive Function
    - Complex Processing
    - Visual Spatial Function
- Examples:
  - The ability to recall items, but can not organize or categorize those items in a constructive way, such as making a grocery list (executive function).
  - The inability to integrate words into a conversation (language), but is able to recall those words in a word list when asked.

MCI Subtype: Worried Well

- A Worried-Well MCI patient will present with a cognitive behavioral performance that is near normal levels, however, they seek medical help because they or their loved ones believe there may be impairments.
- Research has shown that many Worried-Well MCI patients can improve after enrollment in therapy.
- Some Worried-Well MCI patients remain at that level indefinitely.
- Example:
  - For the past 6 months, a 65 year old woman is concerned about her memory. She is under a great deal of stress and has been having difficulty with occasionally misplacing objects in her home.
The MCI Brain

- MCI has distinct neurological differences from both healthy aging and dementia.
- For example, these areas deteriorate in Pure Amnesic and Multiple Domain MCI:
  - The Hippocampus which is critical to memory and processing the world around us.
  - The Posterior Cingulate Cortex which is a relay station for information to be passed to other sections of the brain.
  - The Inferior Parietal Cortex which is the “camera” of our daily interactions; it receives real-time images from the visual cortex and interprets them.

Other brain areas may also deteriorate and breakdown; this accounts for the types of impairments noted in the individual.
- An MRI can be used to help distinguish the subtypes of MCI from healthy aging and dementia.


MCI versus Normal Aging

- These MRI images show the shrinkage of the hippocampus in MCI as compared to healthy aging. The inset on each MRI is an enlarged view of the right hippocampus.
MCI versus Normal Aging

- **Normal Aging**
  - Recall is slower, but individual is able to complete short-term memory tasks.
  - Processing time is slower, but still able to complete task.
  - Normal problem-solving ability is intact if given additional time to complete task.

- **MCI**
  - Individual has difficulty with short-term memory tasks, even if given additional time.

MCI versus Dementia

<table>
<thead>
<tr>
<th>Mild Cognitive Impairment</th>
<th>Alzheimer’s Dementia</th>
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</thead>
<tbody>
<tr>
<td>Exhibit near normal cognitive function (thinking, understanding, decision making)</td>
<td>Generalized cognitive impairment typically affecting multiple areas (learning, reasoning, decision making, language, attention, memory)</td>
</tr>
<tr>
<td>Typically, short term memory is sole cognitive deficit</td>
<td></td>
</tr>
<tr>
<td>Able to complete ADL’s</td>
<td>Significant impairment in ADL completion</td>
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</table>

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<thead>
<tr>
<th>Mild Cognitive Impairment</th>
<th>Alzheimer’s Dementia</th>
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</thead>
<tbody>
<tr>
<td>Exhibit little or no personality change; may demonstrate increased worry or slight defensiveness</td>
<td>Generally exhibit strong evidence of personality changes +Paranoia, suspiciousness</td>
</tr>
<tr>
<td>Maintain judgment skills, although memory is impaired</td>
<td>Evidence of both memory and judgment impairment</td>
</tr>
<tr>
<td>Symptoms are not severe enough to consider dementia as cause</td>
<td>Demonstrate symptoms of dementia as evidenced by formalized testing, such as orientation, word-finding, safety awareness deficits</td>
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Comparison Table

<table>
<thead>
<tr>
<th></th>
<th>Normal Aging</th>
<th>Mild Cognitive Impairment</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Term Memory</td>
<td>Mild Decline, not disabling</td>
<td>Mild Decline, not disabling</td>
<td>Moderate Decline</td>
</tr>
<tr>
<td>Other Cognitive Ability</td>
<td>Not disabling</td>
<td>Minor Changes</td>
<td>Moderate Decline</td>
</tr>
<tr>
<td>Daily Functioning</td>
<td>Normal</td>
<td>Minor Changes</td>
<td>Impaired</td>
</tr>
<tr>
<td>Psychiatric Symptoms</td>
<td>Not Increased</td>
<td>Not Increased</td>
<td>Increased</td>
</tr>
</tbody>
</table>

Cognitive Domains Affected by MCI

- Language
- Attention
- Memory
- Executive Functioning
- Visual-Spatial and Visual-Construction Ability

Mild Cognitive Impairment

Speech Therapy Interventions & Approaches
Functional Changes Observed

- Individual is forgetting to make meals
- Individual is ordering or making the same food items from the menu daily
- Individual is unaware of spoiled food items in household
- Individual has unopened mail piling up in the house
- Individual has increased clutter around the house
- Individual is missing scheduled appointments
- Individual is forgetting to launder linens/clothes on a regular basis

Functional Changes Observed

- Individual is purchasing unnecessary household items that they have already purchased
- Individual is forgetting to take medications as scheduled or cannot identify all their medications and why they are taking them
- Individual has multiple unpaid bills
- Individual is forgetting scheduled appointments
- Individual is frequently misplacing and losing items such as keys, eyeglasses, cell phone, etc.

Multidisciplinary Approach

Importance of a multi-disciplinary approach:
- Impaired cognition impacts all aspects of daily living – not just within the confines of their living space.
- Initial referral may be to Speech Therapy to assess cognitive-communication skills.
- PT and OT must be aware of the impact impaired cognition has on function and refer to other disciplines as necessary.
- Standardized tests and measures should be utilized and completed by each discipline in order to properly assess the resident’s higher-level functional deficits.
Speech Therapy Referral

- ST referral required when individual is:
  - Asking the same question(s) repeatedly.
  - Taking a longer time to recall words.
  - Unable to follow the flow of a conversation.
  - Having difficulty completing tasks with more than 1 step.
  - Having difficulty following a daily schedule.
  - Declining in activity participation.
  - Change in social habits.

ST – Preparing for & Conducting the Evaluation

- Speech Therapy needs to intervene in order to assess the resident’s cognition and level of impairment.
  - Based on screening results, ST would complete an initial evaluation as well as administer a standardized test that is sensitive to MCI.
  - This can help distinguish normal from abnormal cognitive aging, and may help identify patterns in cognitive functions that provide clues to the underlying condition.
  - Standardized tests that could be utilized include the MoCa, SLUMS, or CLQT.
  - Additional tests and measures may be appropriate as functional impairments are identified.

Rehab Interventions - ST

- ST intervention required in order to:
  - Assess cognition
  - Identify strengths/strategies that improve functional performance
  - Teach compensatory strategies to overcome functional deficits
  - Educate family and caregivers on effective cueing strategies
  - Educate staff on potential for early dysphagia risks and possible need for instrumentation
Assessing for MCI

- Standardized Cognitive Assessments sensitive to MCI:
  - Montreal Cognitive Assessment (MoCa)
  - St. Louis University Mental Status Examination (SLUMS)
  - Cognitive-Linguistic Quick Test (CLQT)

<table>
<thead>
<tr>
<th># of Domains Tested</th>
<th>MoCa</th>
<th>SLUMS</th>
<th>CLQT</th>
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<tbody>
<tr>
<td>Time to Administer</td>
<td>10 – 15 mins</td>
<td>10 mins</td>
<td>15 – 30 mins</td>
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Rehab Interventions - ST

- Skilled ST interventions related to MCI may include:
  - Memory retraining strategies
  - Self-cueing strategies to increase speed and accuracy of word retrieval
  - Organizational skill training
  - Safety awareness skills
  - Swallow techniques or compensatory strategies
  - Behavioral strategies in order to learn and retain new information
  - Memory enhancing technique training (i.e., cue cards, calendars, memory books)
  - Strategies to improve attention to task, attentional demand and alternating/divided attention for multi-task performance
Residents with MCI may present with dysphagia risk factors associated with cognitive decline such as:

- Weight loss
- Avoidance of textures, temperatures
- Forgetting to eat
- Decreased awareness of utensils for self-feeding
- Decreased initiation to prepare meal or snack

Benefits to implementing a Mild Cognitive Impairment program in your center:

- Cognitive programming has been shown to reduce risk for further decline and in some cases, slow progression or reverse decline.
- Allows clinicians to initiate effective treatments earlier, potentially altering the progression of the disease.
- Cognitive programming allows individuals to age in place.
- Reduces risks for injury secondary to cognitive decline.
- Enhances safety and competency in performing everyday higher level executive functioning skills.
- Improves an individual’s quality of life and helps to maintain his or her independence.

Getting Started:

- Assess the needs for cognitive programming in your center or community.
- Review your current cognitive programming.
- Obtain resources needed to deliver comprehensive assessment and treatment.
- Schedule trainings within center/community on available services for those with cognitive declines.
**MCI: In Summary**

- Mild Cognitive Impairment is defined as a transitional stage between normal aging and dementia.
- Standardized assessments exist that can distinguish between MCI, normal aging and dementia.
- With treatment, the potential exists for early cognitive changes to be reversed.
- SLP’s play an integral role in cognitive programming in their centers.
- Cognitive programming can assist adults to age in place and remain in their current living environment.

**MCI Resources**

- Additional internet resources:
  - [www.nia.nih.gov](http://www.nia.nih.gov)
  - [www.alz.org](http://www.alz.org)

- Assessment resources:
  - MoCA: [www.mocatest.org](http://www.mocatest.org)
  - CLQT: available through Pearson at [www.psychcorp.com](http://www.psychcorp.com)

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