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Mild Cognitive Impairment

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The past decade has seen a clear move towards clinical characterization of patients with mild cognitive concerns who appear to fall in the "grey zone" between cognitive normality and dementia.

While dementia represents cognitive deterioration causing loss of daytime functional independence, the diagnosis of "Mild Cognitive Impairment" (MCI) can be made earlier, in the presence of cognitive deterioration (confirmed by objective cognitive testing) without any clear loss of daytime functional independence[1,2].

Case Example: *A 67 year-old man living with his wife has had a one-year history of increasing forgetfulness for details from recent conversations. On one occasion 2-3 months ago, the patient was clearly told to pick up his wife at the store, but he never did, not recalling he was asked to do so. The patient is fully independent for all daytime functioning such as taking medications and going shopping, and he drives safely without accidents. His past history is notable for hypertension, for which he is treated with ramipril. Family history is negative for any neurologic disease. Physical examination is normal, as is bloodwork and a CT scan of the head. Mini-Mental State Examination (MMSE) is 28 out of 30, but the Montreal Cognitive Assessment (MoCA) score is 24/30 with 0/5 words recalled after a delay. Neuropsychological testing revealed delayed memory scores below the 8th percentile for age and gender. As the patient has cognitive symptoms which are verified by formalized cognitive testing, but daytime functioning is intact, a diagnosis of Mild Cognitive Impairment (MCI) is made.*

A diagnosis of MCI indicates a "warning state" which carries an increased risk of further cognitive deterioration towards dementia (MCI patients have a ~10-15% per year conversion to dementia, while a normal population has ~1-2% per year conversion to dementia[1,3]). MCI patients and their loved ones can be informed of this increased risk, and increased clinical follow-up can be arranged. Furthermore, patients with MCI represent an ideal target population for testing of novel "disease-modifying" therapeutics designed to slow the neurodegenerative processes of conditions such as Alzheimer's disease.

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Mild Cognitive Impairment *(...continued from page 1)*

Indeed, the most common form of MCI is one in which memory is primarily affected (i.e. amnestic MCI), which has an increased risk of progressing to the dementia of Alzheimer's disease. However, MCI involving other cognitive domains such as language, visuospatial, attention, or executive functioning (i.e. non-amnestic MCI), may progress to dementias due to other conditions, such as vascular disease, Lewy body disease, or Frontotemporal lobar degeneration[4,5].

The diagnosis of MCI involves careful clinical judgment regarding the nature and severity of cognitive symptoms, focusing on the presence or absence of clear-cut daytime functional impairment. Investigations such as routine bloodwork screening along with thyroid function and vitamin B12 levels, as well as a CT or MRI scan of the brain, are routinely indicated.

Neuropsychological testing is very helpful in detecting the objective cognitive deterioration required to make a diagnosis of MCI. However, office testing involving the Montreal Cognitive Assessment (MoCA) can also find evidence of cognitive impairment if the score is less than 26/30[6]. Referral to a cognitive specialty clinic can provide assistance in obtaining in-depth cognitive testing.

No pharmaceutical agent has been approved for the treatment of MCI, as clinical trials involving the cholinesterase inhibitors donepezil, rivastigmine, and galantamine have been negative[7,8,9]. However, in one trial, use of donepezil did delay conversion of MCI to Alzheimer's dementia by 6-12 months[7], though there was no sustained delay in conversion by the end of the trial at 3 years. Therefore, treatment of MCI with donepezil or other cholinesterase inhibitors is not routinely recommended unless patients are highly motivated to begin treatment, or there appears to be imminent conversion to the dementia stage, at which treatment with cholinesterase inhibitor therapy is indicated. Management of vascular risk factors is likely of benefit in the prevention of decline in patients with MCI, as is the maintenance of mental, physical, and social activities in daily life[10].

Mild Cognitive Impairment (MCI) represents a clinical diagnostic framework in which patients with mild cognitive symptoms can be characterized. The diagnosis of MCI carries an increased risk of future worsening of symptoms, and represents an ideal target population in which future disease-modifying therapies may be most beneficial.

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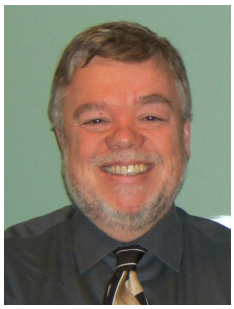
Monitoring Patient Response to Cognitive Enhancers (Cholinesterase Inhibitors and Memantine)



Dr. Bill Dalziel, Chief, Regional Geriatric Program of Eastern Ontario, Associate Professor, Geriatric Medicine, University of Ottawa

1. Currently in Canada, only 25% of persons with dementia get a trial of a Cholinesterase Inhibitor (Aricept, Reminyl ER, Exelon) or Memantine. Everyone should receive a three month trial of one drug and if non-responsive/not tolerated, a trial with a second drug. Of course, consideration needs to be given to side effects and compliance issues. By the moderate stage of dementia, optimum therapy would include a trial of a CI and a trial of Memantine, either alone or in combination.

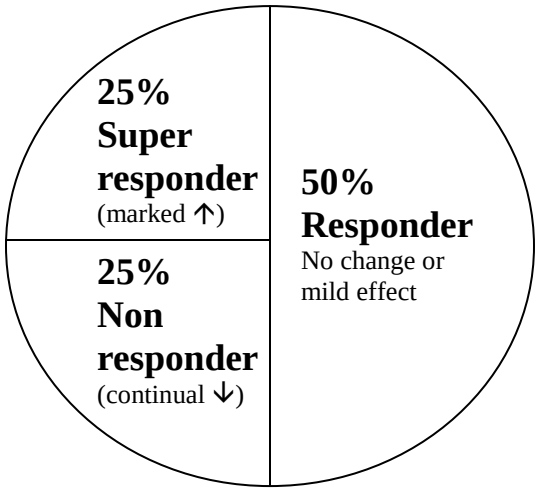
2. Monitor benefit at three months. This has been shown by studies to be generally the timeframe for optimum response. (If you're unsure, go on to six months.)

3. Response is best judged by caregiver/patient impression, not MMSE. The expected MMSE decline in untreated AD for one year is only 1 – 2 points; therefore only 1/2 point maximum change at three months. But the MMSE test-retest variability is two points. Therefore, obviously unless there is a big change (super responder: 25%) with > 2 point MMSE improvement, MMSE scores are not that helpful.

4. Patient /caregiver feedback is critically driven by (1) expectations, (2) global impression, and (3) a target symptom checklist approach.

   i) Expectations. No change in the person at three months is a POSITIVE response to drug therapy because untreated dementia progressively worsens over time. The average patient response to CI therapy is NO deterioration one year post treatment. (In terms of "clinical meaningfulness", think of this in cancer terms. "I have a drug that in one year, your cancer (dementia) on average will be no worse."

   Expected Response at Three Months:



A non responder should be switched to a different CI or Memantine for a second three month trial.

It is very important when starting therapy to explain these expectations so patient/caregivers understand that no change is a positive treatment response, demonstrating stabilization of the condition.

Monitoring Patient Response to Cognitive Enhancers
(… *continued from page 4*)

ii) Global impression by patient/caregiver is just a 'seat of the pants': same, better or worse. Five areas factor into global impression:

	Same	Better	Worse
Global Impression			
1. Cognition			
2. ADL's (function)			
3. Behaviour			
4. Caregiver stress/burden			
5. Interactiveness			

iii) A Target Symptom Checklist approach identifies those specific symptoms of dementia which are a "problem" and have changed in the last 6 –12 months (therefore more likely to be affected by drug treatment). We use the same approach in other diseases: depression, arthritis, etc. In my opinion, the most responsive domains are interactiveness, caregiver stress/burden, global impression and behaviour. On the following checklist, pre treatment ask the patient and family to identify four to five target symptoms relevant to the individual, then to monitor and report these back to you at three months.

Cognition	**ADL's (function)**	**Behaviour**	**Caregiver**	**Interactiveness**
Forgetfulness	Telephone use	Apathy	Stress	Can't focus
Repetitiveness	Set/clear table	Anxiety	Burden	↓ interaction
Orientation	Hygiene	Irritability	Overwhelmed	"Tuned in vs out"
Word finding	Bathing	Agitation	Frustration	↓participation
Getting lost	Dressing	Restlessness	Impact on job	↓interest
Misplacing things	Appliances use	Outbursts	Fatigue	↓ initiative
Planning problems	Finances	Depression	Depression	More "like her/ his own self"

THANK YOU

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Champlain Dementia Network Assessment and Treatment Services

1. MEMORY DISORDER CLINIC (MDC)

Élisabeth-Bruyère Health Centre 75 Bruyère St. Room # 298-22 Ottawa ON K1N 5C7 ***** Physician referral needed*****	Telephone: 613-562-6322 Fax: 613-562-6013

- The main focus is the diagnosis of early dementia (mild to moderate) and the difficult diagnosis of atypical patients with dementia at any stage and at any age.
- Typically the patients function at a high level and do not have significant other psychiatric conditions, complex medical problems, or a history of head injury or mental retardation.
- Neurology, Neuropsychology, and Nursing.
- Referral to MDC is appropriate for patients requiring complete dementia work-up.

2. REGIONAL GERIATRIC ASSESSMENT PROGRAM (RGAP) OUTREACH TEAMS AND DAY HOSPITALS /CLINIC SERVICES

2A- East Geriatric Assessment Outreach Team Élisabeth-Bruyère Health Centre 75 Bruyère Street Room 420-Y Ottawa ON K1N 5C7 ***** For Patients EAST of Bronson Avenue and the Ottawa River *****	Telephone: 613-562-6362 Fax: 613-562-6373
2B- West Geriatric Assessment Outreach Team Queensway-Carleton Hospital 3045 Baseline Road Ottawa ON K2H 8P4 ***** For Patients WEST of Bronson Avenue and the Ottawa River *****	Telephone: 613-721-0041 Fax: 613-820-6659

- The main focus is on diagnostic assessment of dementia (mild, moderate or severe) and concomitant medical problems in patients over age 65. There is also an emphasis on multidisciplinary assessment and management of associated issues such as functional dependency, safety, caregiver stress, education needs, community services, and future planning.
- Geriatric Assessment Outreach Teams provide in-home comprehensive screening with triage to geriatric day hospitals (3) for geriatric physician assessment and full multidisciplinary team assessment or to outpatient clinics (3) for geriatric physician assessment.
- Patients with common geriatric problems not suffering from dementia are also assessed and treated.

CDN Diagnostic Assessment and Treatment Services

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3. GERIATRIC PSYCHIATRY COMMUNITY SERVICES OF OTTAWA (GPCSO)

Élisabeth-Bruyère Health Centre 75 Bruyère Street Room 129Y Ottawa ON K1N 5C7	Telephone: 613-562-9777 Fax: 613-562-0259

- The main focus of GPCSO is to provide bilingual services to persons 65 years of age and older with mental health problems including dementia and to persons less than 65 years of age who have been diagnosed with Alzheimer or frontal lobe dementia.

- Case managers will work with the person and family/caregiver in their homes providing assessment, counselling, behavioural management, education and advice regarding community services and future planning. In addition, capacity assessments for personal care/property are available for a fee.

- Geriatric psychiatry consults are available upon request to treat concomitant depression, behavioural problems, or other psychiatric problems. This may include doing a home visit, if appropriate.

4. ROYAL OTTAWA MENTAL HEALTH CENTRE

1145 Carling Avenue Ottawa ON K1Z 7K4 ***** Physician referral needed*****	Telephone: 613-722-6521 x 6507 Fax: 613-798-2999

- This program offers a range of services to meet the mental health needs of persons 65 years of age and older. Patients suffering from dementia with concurrent depression, psychosis or behavioural problems are assessed and treated by a bilingual, multidisciplinary team. Services offered are:

  - The **Outpatient Clinic** is a consultation service offering professional advice and psychiatric expertise to primary care physicians. The clinic provides the initial assessment for all patients referred to the program.

  - The **Outreach Service** provides consultative and educational services to most long-term care facilities in Ottawa. A psychiatrist and nurse work together to support staff and patients in these facilities.

  - The **Day Hospital** provides a time limited day treatment for persons who require urgent and intensive treatment, but can safely live in the community. The **Inpatient Service** treats patients with complex psychiatric illnesses that require specialized inpatient care. These two services are available as determined by the initial outpatient or outreach consultation.