

Mild Cognitive Impairment

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Introduction

- Dementia affects:
 - 1 in 11 Canadians > age 65
 - 1 in 3 Canadians > age 85
- An estimated 500,000 Canadians are currently living with AD or a related dementia. This number is expected to more than double over the next generation.

(Alzheimer Society of Canada, 2010)

Introduction

- Early detection and intervention may hold promise in delaying the onset or progression of dementia
- Research is focused on the intermediate state between normal cognition and the early stages of dementia, since individuals in this “grey zone” are believed to be at greater risk of progressing to dementia

“Grey Zone”

A variety of terms have been used to depict the concept of “cognitive impairment, not yet dementia”:

- Age-associated memory impairment (Crook et al., 1986)
- Aging-associated cognitive decline (Levy, 1994)
- Mild cognitive disorder (World Health Organization, 1993)
- Mild neurocognitive disorder (American Psychiatric Assoc, 1994)
- Cognitive impairment no dementia (Graham et al., 1997)
- Mild cognitive impairment (Petersen et al., 1999)

Overview of Talk

- Definition of MCI
- Prevalence, outcomes
- Clinical approach to diagnosis
- Subtypes of MCI
- Psychiatric symptoms
- Treatment options
- Clinical management

MCI – original criteria

Petersen et al. (1999)

- Memory complaint, preferably corroborated by an informant
- Objective memory impairment for age
- Normal general cognitive function
- Intact activities of daily living
- Not demented

MCI – original criteria

- Petersen et al. (1999) focused on MCI as a prodromal condition for AD and therefore emphasized memory impairment in the criteria
- But, not all forms of MCI progress to AD
- At a 2004 international conference on MCI, the criteria were expanded to include other forms of cognitive impairment

MCI – revised criteria

Winblad et al. (2004) – International Working Group on MCI

- Not normal, not demented
- Cognitive deterioration, shown by either of the following:
 - Subjective report of decline by self or informant in conjunction with deficits on objective cognitive tests
 - Decline over time on objective cognitive tests
- Preserved basic ADLs; minimally impaired complex instrumental functions

Prevalence of MCI

- Prevalence is approx. 15% in the Mayo Clinic Study of Aging (Petersen et al., 2009)
- This is a population study involving a random sample of nearly 3000 participants, ages 70-89 years, who were cognitively normal or had MCI at entry

Prevalence Studies

Table 2. Prevalence Studies

Source	Study Location	No. of Participants	Participant Age, y	Prevalence of MCI, %
Unverzagt et al, ¹⁹ 2001	Indianapolis, IN	2212	≥65	23.4
Hänninen et al, ²⁰ 2002	Finland	806	60-76	5.3
Lopez et al, ¹⁷ 2003	CHS	1690	≥75	22
Ganguli et al, ¹³ 2004	MoVIES	1248	≥65	3.2
Busse et al, ¹² 2006	Leipzig, Germany	980	75-79	19.3
Das et al, ²² 2007	India	745	≥50	14.9
Di Carlo et al, ²³ 2007	Italy	2830	65-84	16.1
Fischer et al, ²⁴ 2007	Vienna, Austria	581	75	24.3
Manly et al, ²⁵ 2008	Manhattan, NY	2364	≥65	21.8
Palmer et al, ²¹ 2008	Kungsholmen, Stockholm, Sweden	379	75-95	11.1
Plassman et al, ²⁶ 2008	ADAMS	856	≥71	22.2
Roberts et al, ²⁷ 2008	Rochester, MN	1969	70-89	14.8

Abbreviations: ADAMS, Aging, Demographics and Memory Study; CHS, Cardiovascular Health Study; MCI, mild cognitive impairment; MoVIES, Monongahela Valley Independent Elders Survey.

Petersen, R. C. et al. Arch Neurol 2009;66:1447-1455.

Outcomes

Clinic studies

- 10-15% annual conversion rate

Population studies

- 6-10% annual conversion rate
- 20-40% reversion rate to normal

Outcomes

- Clinic studies – selection bias
- Population studies – broader spectrum of MCI severity, more heterogeneity in underlying etiology
- Progression rates in both settings still far exceed those that have been estimated for healthy elderly (1-2% per year) (Petersen et al., 2009)

Predictors of Conversion

Clinical, imaging, genetic, and CSF aspects have been widely examined as possible markers in MCI. The most common factors that have been identified include:

- Severity of cognitive impairment
- ApoE ϵ 4 carrier status
- Atrophy on MRI
- ^{18}FDG PET pattern of AD
- CSF markers compatible with AD
- Positive amyloid imaging scan

MCI Diagnostic Criteria

- Given the high risk of progressing from MCI to dementia, it is important for clinicians to have knowledge of the definition, diagnosis, and treatment of MCI
- MCI is a syndrome that is defined by clinical, cognitive, and functional criteria
- It cannot be diagnosed by a laboratory test, but requires the judgment of a clinician

Concern re. change in cognition

- The first criterion involves concern about a change in memory or cognition, compared to the person's prior level
- This concern may be expressed by the client, by an informant who knows the client well (e.g., family member), or by a clinician observing the individual

Objective impairment in 1 or more cognitive domains

- There should be objective evidence of lower performance in one or more cognitive domains that is greater than would be expected on the basis of age and education
- If repeated assessments are available, then a decline in performance should be evident over time

Objective impairment in 1 or more cognitive domains

Episodic memory is the area that is most commonly affected in MCI patients who later progress to AD

- Refers to memory for personally relevant events/episodes
- Typically expressed as an impairment in the learning of new information (e.g., stories, word lists)
- Can be seen on measures of free (verbal) recall

Objective impairment in 1 or more cognitive domains

But, it's now widely accepted that a decline can also be seen in other aspects of cognition, including:

- Attention
- Executive functions (e.g., planning, problem solving, working memory)
- Language (e.g., confrontation naming, verbal fluency)
- Visual spatial skills

Objective impairment in 1 or more cognitive domains

- Isolated memory problems are actually quite rare in people with MCI (Jak et al., 2009)
- Multi-domain presentations may be more common than purely amnestic presentations

Objective impairment in 1 or more cognitive domains

- This criterion has been a major source of contention in the literature – difficult to define in practical terms
- Individuals with MCI typically score 1-1.5 SD below age norms on standardized cognitive tests
- Many investigators have adopted this as a cut-off score, rather than using it as a general guideline

Objective impairment in 1 or more cognitive domains

- But, there is still no consensus on:
 - What types of cognitive tests should be used
 - How many tests are needed
 - What norms or thresholds should be adopted
- Reliance on quantitative criteria is more problematic when diagnosing individuals with above or below average IQ
- Clinical judgment is therefore essential in assessing whether a diagnosis of MCI is warranted

Minimally impaired IADLs

- The next step is to assess whether the cognitive decline is causing an impairment in functional activities
- The original MCI criteria were revised by Winblad et al. (2004) to allow for some “minimal impairment” in more complex day-to-day functions
- Individuals with MCI may show subtle changes in instrumental, but not basic, ADLs (e.g., Artero, Touchon, & Ritchie, 2001; Pérès et al., 2006)

Minimally impaired IADLs

- Several scales are available to evaluate functional capacity in the elderly, but no specific instruments have been recommended for use in the case of MCI
- There is also still a need for consensus re. the degree of functional decline that can be considered to be acceptable within the context of the MCI definition
- This requires the judgment of a clinician

Minimally impaired IADLs

- People with MCI may experience mild problems carrying out complex functional tasks they used to be able to perform (e.g., paying bills, preparing meals, shopping)
- They may take more time, be less efficient, or make more errors at performing these activities than in the past
- But, they generally maintain their independence in everyday life, with minimal aids or assistance

Not demented

- This criterion combines the evidence from the first three criteria and hinges on the degree of functional impairment
- It is made on the basis of the clinician's best judgment
- It specifies that cognitive changes should be sufficiently mild that they do not cause a significant impairment in everyday functioning

Approach to diagnosis

- In terms of applying these criteria to clinical practice, there is no standardized way to diagnosis or screen for MCI
- Some authors have suggested that the process should be similar to that for diagnosing dementia, which includes:
 - History-taking
 - Diagnostic testing
 - Objective cognitive assessment

(Chertkow et al., 2008; Feldman et al., 2008)

History-Taking

- Screening for MCI should occur whenever elderly clients present with subjective memory or cognitive complaints
- It is important to query about the following:
 - Onset (e.g., when did the symptoms begin?)
 - Nature (e.g., what are some specific examples?)
 - Frequency (e.g., how often do the symptoms occur?)
 - Progression (e.g., have the symptoms gotten any worse?)

History-Taking

- It is also necessary to ask about the impact that these symptoms may be having on everyday life
- This is one of the most important aspects of history-taking, since the degree to which functional skills are preserved vs. impaired is what distinguishes MCI from dementia
- Basic ADLs (e.g., grooming, feeding) should be intact
- Instrumental ADLs (e.g., cooking, finances) should be only minimally impaired

History-Taking

- Interviewing a family member is another essential part of the history-taking
- This collateral can be very helpful in ascertaining the extent to which cognition or function may have changed from the person's previous level of ability
- Family involvement at this stage can also provide an opportunity to gauge family support systems, which can be important in addressing future management issues

History-Taking

It is also necessary to obtain other aspects of the history (particularly for new clients), including:

- Psychiatric, medical, and substance use history
- Current medications (certain drugs, e.g., anticholinergics and benzodiazepines, can cause cognitive side-effects)
- Family history (e.g., of dementia)
- Psychosocial history (e.g., to obtain a benchmark of premorbid function based on education and occupation)

Diagnostic Testing

Diagnostic testing in MCI includes laboratory tests that are typically ordered in dementia work-ups, including:

- Complete blood count (to rule out anemia)
- Thyroid stimulating hormone (to rule out hypothyroidism)
- Serum electrolytes (to rule out hyponatremia)
- Serum calcium (to rule out hypercalcemia)
- Serum fasting glucose (to rule out hyperglycemia)
- Serum vitamin B₁₂ (to rule out vitamin B₁₂ deficiency)

Chertkow et al. (2008); Feldman et al. (2008)

Diagnostic Testing

- Other diagnostic testing may include neuroimaging for patients meeting certain criteria (which are outlined more fully in Feldman et al., 2008)
- CT and MRI are not routinely used for diagnosis of MCI
- But, there may be times when neuroimaging is indicated (e.g., to evaluate the possible role of cerebrovascular disease in individuals presenting with vascular risk factors)

Cognitive Assessment

- Two evidence-based reviews examined the utility of brief cognitive tests and neuropsychological evaluations in the detection and diagnosis of MCI
 - Chertkow et al (2007)
 - Jacova et al. (2007)
- They were carried out as part of the CCCDTD3 and provide evidence-based recommendations for the cognitive assessment of MCI

Brief Cognitive Tests: MMSE

- Widely used in clinical practice
- But, has low sensitivity to mild degrees of impairment
- If a cut-off <24/30 is used for dementia, that leaves only a 6-point range for discriminating MCI vs. normal functioning

Brief Cognitive Tests

- Montreal Cognitive Assessment (Nasreddine et al., 2005)
- DemTect (Kalbe et al., 2004)
- CERAD 10-Word List (Shankle et al., 2005)
- Combined Mini-Mental-Cognitive Capacity (Xu et al., 2004)
- Mod. Mini-Mental State with Extended DR (Loewenstein et al., 2000)
- Mini-Cog (Borson et al., 2005)
- Short Test of Mental Status (Tang-Wai et al., 2003)
- 6-Item Screener (Callahan et al., 2002)
- AB Cognitive Screen (Molloy, 2005)

Brief Cognitive Tests: MOCA

- Nasreddine et al., 2005
- 30-point test, given in 10-15 minutes
- Covers several cognitive domains (e.g., orientation, attention, imm/del recall, executive function, language, v/c skills)
- Sensitivity = 90%, specificity = 87% in terms of detecting MCI in patients and separating them from normal controls
- Pos predictive power = 89%, Neg predictive power = 91%
- www.mocatest.org (available free of charge)

Brief Cognitive Tests: DemTect

- Kalbe et al (2004)
- 18-point test, given in 8-10 min
- Evaluates immediate and delayed recall of word list, number transcoding, verbal fluency, reverse digit span
- Sensitivity = 80%, specificity = 92% in terms of detecting MCI in patients and separating them from normal controls

Neuropsychological Evaluations

- NPT consists of detailed, standardized assessment across a wide range of cognitive domains
- It is more sensitive at detecting subtle cognitive dysfunction compared to brief cognitive screening measures
- It involves integration of multiple sources of information in order to help make determinations about etiology
- According to the CCCDTD3, there is good evidence that the addition of in-depth NPT can be recommended to aid in confirming the diagnosis of MCI

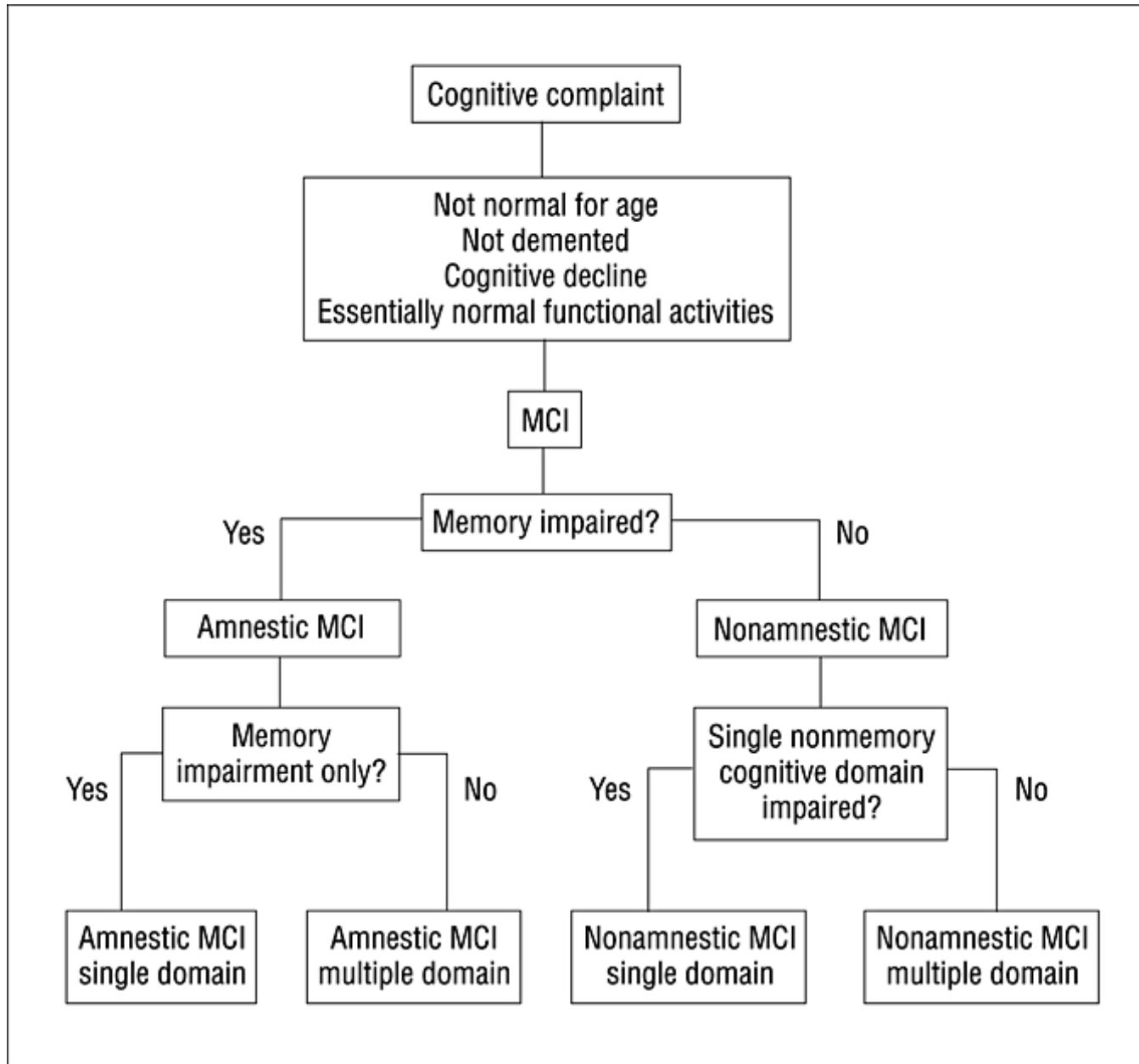
Neuropsychological Evaluations

NPT has been shown to have utility in the following areas:

- Addressing the distinction between the cognitive functioning associated with normal aging, MCI, and early dementia
- Addressing the risk of progression from MCI to dementia
- Assisting with differential diagnosis of dementia and other syndromes of cognitive impairment
- Determining whether there has been progression of cognitive impairment or the development of new impairment(s) to assist in management

MCI Subtypes

- Once it has been determined that a person meets the criteria for MCI, then the clinical presentation can be classified according to one of four subtypes
- These subtypes are intended to recognize that not all forms of MCI necessarily go on to AD, but rather may be a prodrome to other types of dementia instead



		Pathogenesis			
		Degenerative	Vascular	Psychiatric	Medical Conditions
Clinical Classification	Single domain	AD		Depr	
	Multiple domain	AD	VaD	Depr	
	Single domain	FTD			
	Multiple domain	DLB	VaD		

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MCI Subtypes

- Do these subtypes have different prognoses for progression to dementia?
- Which types of dementia do they predict?
- What effect do they have on survival times?

MCI Subtypes

- Chertkow et al. (2007) caution that the validity of these subtypes is still quite unproven at the present time
- Most of what we know pertains to amnestic MCI
- Petersen & O'Brien (2006) suggest that non-amnestic MCI should remain a research entity until we learn more about the criteria and outcomes associated this subtype

Psychiatric Symptoms

- Studies have consistently documented a high prevalence of neuropsychiatric symptoms in MCI
- Estimates of the total number of MCI patients reported to show ≥ 1 neuropsychiatric symptoms have ranged from 35-85% (Apostolova & Cummings, 2008; Monastero et al., 2009)

Psychiatric Symptoms

Most common symptoms

- Depression
- Anxiety
- Irritability
- Apathy
- Agitation

Least common symptoms

- Euphoria
- Disinhibition
- Delusions
- Hallucinations

Reviews: Apostolova & Cummings (2008); Monastero et al. (2009)

Psychiatric Symptoms

- Neuropsychiatric symptoms in MCI are associated with worse cognitive and functional abilities (Apostolova & Cummings, 2008; Monastero et al., 2009)
- Depression is associated with an increased risk of developing MCI (e.g., Geda et al., 2006; Lopez et al., 2003)
- Baseline levels of depression, apathy, and anxiety are associated with an increased risk of conversion from MCI to AD (e.g., Modrego & Ferrandez, 2004; Palmer et al., 2010)

Psychiatric Symptoms

Modrego & Fernandez (2004)

- Followed a cohort of 114 individuals with MCI for 3 years
- 36% of participants had depression at baseline
- MCI patients with depression were 2.6 times more likely to develop AD than were MCI patients without depression
- Those who were depressed developed dementia earlier than those who were not depressed

Psychiatric Symptoms

Palmer et al. (2010)

- Participants with diagnoses of a-MCI and apathy had an almost sevenfold risk of progressing to AD over 4 years compared to a-MCI p's without apathy
- This association remained even after adjusting for baseline diagnosis of depression

Psychiatric Symptoms

- It has been suggested that certain neuropsychiatric symptoms in MCI may serve as clinical indicators for the presence of prodromal dementia (Apostolova & Cummings, 2008; Monastero et al., 2009)
- Many have speculated that future formulations of MCI may need to be expanded to include non-cognitive symptoms (International Psychogeriatric Association Expert Conference on MCI, 2006)
- Terms such as ‘dysphoric’ MCI have already been proposed in the literature (Gauthier & Touchon, 2005)

Psychiatric Symptoms

- But, much work still remains to be done in order to more fully determine the prognostic role of neuropsychiatric symptoms in MCI
- ... especially since the majority of research studies still exclude individuals with depression or inadequately assess mood-related symptoms

Psychiatric Symptoms

In a report from the 2003 NIMH conference on depression and MCI, Steffens et al. (2006) highlighted the need for more research to clarify if mood symptoms might:

- Be included in diagnostic criteria sets (e.g., MCI and mood d/o)
- Act as a modifier (e.g., MCI with depression)
- Be excluded from the MCI diagnosis
- Be seen as 1 of 2 distinct but not mutually exclusive diagnoses (e.g., MCI and major or minor depression)

Psychiatric Symptoms

- Although there is still no consensus on this debate, the important issue for clinicians is that MCI and neuropsychiatric symptoms are frequently linked
- The presence of depression or other mood symptoms, particularly if they are of late onset, should alert the need for cognitive screening (Potter & Steffens, 2007)
- Similarly, clinical evaluations of patients with suspected MCI should incorporate assessment of neuropsychiatric symptoms (Lyketsos et al., 2002)

Treatment

- MCI is widely viewed as being an optimal stage at which to intervene with preventative therapies
- a-MCI has been the focus of most research efforts because of its greater risk of progressing to dementia
- Studies have typically aimed to identify treatments that can stabilize symptoms or delay the onset of dementia

Pharmacologic Interventions

In RCTs, ranging from 3 months – 6 years, the following classes of drugs have failed to prevent progression of MCI to dementia (Massoud et al., 2007):

- ChEIs (donepezil, rivastigmine, galantamine)
- Antioxidants (vitamin E)
- Non-steroidal anti-inflammatories (rofecoxib)
- Nootropics (piracetam)

Alzheimer's Disease Cooperative Study Petersen et al. (2005)

- 3-year, double-blind, randomized controlled trial
- a-MCI – vitamin E, donepezil, or placebo
- Primary endpoint was clinical diagnosis of AD
- There were no group differences in progression to AD
- But, the donepezil group had a reduced risk of developing AD for the first 12 months
- This effect was more prominent among ApoE4 carriers, who showed a reduction in risk throughout the full 36-month period

Pharmacologic Interventions

According to the CCCDTD3 (Massoud et al., 2007):

- There is insufficient evidence to recommend for the use of ChEIs in MCI
- There is fair evidence to recommend against the use of NSAIDS, estrogen replacement therapy, ginkgo biloba, and vitamin E in MCI

Pharmacologic Interventions

More research is needed with clinical trials that are designed to select:

- More homogeneous samples at entry
- Optimal treatment durations
- More sensitive cognitive and global outcome measures that reflect subtle impairments in complex activities

(Jelic, Kivipelto, & Winblad, 2005)

Non-Pharmacologic Interventions

- Physical exercise
- Cognitive intervention
 - Cognitive stimulation
 - Cognitive training

Physical Exercise

- Several studies have shown that increased levels of physical activity are associated with beneficial effects on cognition
- Meta-analysis of 18 studies (Colcombe & Kramer, 2003):
 - Fitness training had a moderate effect (0.48) on improving cognitive performance in healthy aging adults, regardless of the type of cognitive task or training method
 - The greatest benefit was seen in the area of executive functioning (0.68)

Physical Exercise

- Several prospective studies have shown that physically active people have a lower risk of developing dementia compared with those who are less physically active
- A systematic review and meta-analysis of 16 prospective epidemiological studies concluded that physical activity reduces the risk of dementia by 28% and the risk of AD by 45% (Hamer & Chida, 2009)

Geda et al. (2010) (Mayo Clinic Study of Aging)

- Is physical exercise associated with a decreased risk of MCI?
- Compared frequency of exercise among 198 participants with MCI and 1126 participants with normal cognition
- Found that any frequency of moderate exercise (e.g., brisk walking) was associated with a reduced odds of having MCI
 - 39% reduced odds ratio with mid-life exercise (50-65 yrs)
 - 32% reduced odds ratio with late-life exercise

Physical Exercise

- Other studies have suggested that physical training interventions may also provide a cognitive benefit for some individuals with MCI
- A RCT by Baker et al. (2009) found that 6 months of aerobic exercise (relative to a stretching control) improved performance on tasks of executive functions (e.g., Trails B, stroop, verbal fluency), with more pronounced effects seen in women than in men

Physical Exercise

- To date, though, the number of clinical trials that target MCI is still very limited and most show only modest or partial benefits (Lautenschlager, Cox, & Kurz, 2010)
- According to the CCCDTD3, there is currently insufficient evidence to conclude that a specific program of physical training warrants prescription in MCI patients to prevent progression to dementia (Massoud et al., 2007)

Physical Exercise

- However, the CCCDTD3 also stated that there is fair evidence to recommend that clinicians should promote physical activity at an intensity level that is adapted to a person's overall physical capacities as part of a healthy lifestyle for older individuals with and without memory loss

Cognitive Intervention: Cognitive Stimulation vs. Cognitive Training

1. Cognitive stimulation

- Involvement in activities that are designed to increase cognitive and social functioning in a non-specific manner
- Based on self-report, with participants indicating their degree of participation in a variety of leisure and social activities (e.g., reading, board games, group discussions)

Cognitive Intervention: Cognitive Stimulation vs. Cognitive Training

2. Cognitive training

- Involves teaching individuals empirically-supported strategies and skills in order to optimize current cognitive functioning and independence in daily activities
- Examples include systematic training in the use of memory techniques and aids, like errorless learning, spaced retrieval, and day planners

Cognitive Stimulation

Several longitudinal studies involving healthy older adults have suggested that engagement in cognitively stimulating activities is associated with decreased cognitive decline and a reduced risk of developing:

- a-MCI (e.g., Verghese et al., 2006)
- AD (e.g., Wilson et al., 2002)

Verghese et al. (2006)

- Prospective study of 437 healthy elderly adults
- Examined relationship between baseline level of participation in leisure activities and risk of a-MCI over 5½ yrs
- P's with scores in the highest third on the Cognitive Activity Scale had a 54% reduced risk of developing a-MCI compared with those who had scores in the lowest third
- This rel'ship persisted even after excluding p's who converted to dementia within 2 yrs of meeting criteria for a-MCI

Cognitive Stimulation

- These studies are correlational in nature, so the direction of causality remains to be determined
- The findings suggest that cognitive activities may have a protective effect on the development of cognitive deficits in aging
- But, they don't exclude the possibility that reduced participation may instead be an early sign of dementia

Cognitive Training

- Several researchers have taken a more systematic approach to cognitive training in order to help maintain or enhance cognitive functioning in the elderly
- They have applied cognitive training interventions mostly to normal aging and dementia populations
- But, the results to date have been mixed and there are still no definitive conclusions in the literature about the efficacy of cognitive training in the elderly

Cognitive Training in MCI: Jean et al. (2010)

- Systematic review of 15 studies (5 RCTs, 8 quasi-experimental, 2 single-case)
- Examined cognitive training programs in p's who were diagnosed with a-MCI using Petersen's criteria
- All programs targeted episodic memory in their training
- Some also addressed other areas of cognition (e.g., attention, processing speed, executive function)
- A number of programs offered education about memory, relaxation, and other related topics

Cognitive Training in MCI: Jean et al. (2010)

- At the end of training, there were significant improvements on 44% of the objective memory tasks compared with 12% of the objective non-memory tasks of cognition
- There were also significant improvements on 49% of the subjective measures of memory, quality of life, and mood after cognitive training

Cognitive Training

- These findings are promising... but, a number of uncertainties still exist with respect to the role and efficacy of cognitive training in MCI
- Additional research is needed with studies that use larger samples of p's and randomized controlled designs
- Issues related to proper outcome measures, generalization, and types of intervention formats also need to be addressed

Cognitive Training

According to the CCCDTD3:

- There is insufficient evidence to conclude that organized cognitive intervention is beneficial in preventing progression in MCI or that it warrants prescription
- There is fair evidence to promote engagement in cognitive activity as part of an overall healthy lifestyle for elderly individuals with and without memory loss

Clinical Management

- How do we take these research findings and apply them to the clinical management of individual patients?
- It's clear from the literature that we still have no definitive treatments for MCI
- Clinical management is instead focused more on regular follow-up evaluations, psychoeducation, and support than on treatment with specific therapies

Diagnostic Disclosure

- It is important to disclose the diagnosis of MCI in a way that is sensitive to the individual needs of the patient and that also involves the family
- People should be counseled that they are at higher risk of progression to dementia
- But, they should also be told that not everyone with MCI will convert and that there is still some room for optimism

Diagnostic Disclosure

- This process of educating patients and families about MCI can be helpful in eliminating anxiety and can also provide a context for addressing the next steps to be taken
- Clinicians will need to initiate a dialogue with patients and families about a number of important issues:
 - Regular follow-up
 - Treatment options (including healthy lifestyle choices)
 - Future planning
 - Community resources

Regular Follow-Up

- Given the uncertainty of prognosis in this population, it has been recommended that MCI patients should be seen every 6 to 12 months for follow-up (Chertkow et al., 2008; Rosenberg, Johnston, & Lyketsos, 2006)
- This would consist of repeat cognitive screening, functional inquiry, and careful history taking (including family collateral) to assess for conversion to dementia

Regular Follow-Up

- It is also important to educate patients and families about the kinds of warning signs to look for that would suggest the possibility of progression and warrant the need for follow-up
- Neuropsychological testing should be repeated every 1-2 years or when conversion is suspected
- Other assessments that may be indicated include driving evaluations whenever there are driver safety concerns

Treatment Options

- There are no specific pharmacologic or non-pharmacologic therapies that can be recommended for use in MCI
- But, there are still many things that people can do that may be helpful at this stage
- Participation in leisure activities, cognitive stimulation, and physical exercise should be encouraged as part of a healthy lifestyle in this population (Massoud et al., 2007)

Treatment Options

The Alzheimer Society of Canada has brochures on “Taking Charge of Your Brain Health”, which cover the following:

Challenge yourself

Be socially active

Make healthy food choices

Reduce stress

Be physically active

Protect your head

<http://www.alzheimer.ca/english/resources/as-publications.htm>

Treatment Options

- It can be helpful to talk with clients and families about specific ways to personalize and apply the information to their own lives and thereby make lifestyle changes seem more attainable
- This would include providing them with written materials about local seniors' organizations that offer educational seminars, exercise classes, social recreation, and other related activities that promote healthy living

Treatment Options

- Pay close attention to the control of vascular risk factors (e.g., blood pressure, diabetes, lipid profile)
- Consider treating mood-related symptoms with pharmacotherapy and/or psychotherapy
- Review current medications and consider stopping those that are known to have cognitive side-effects (e.g., anticholinergics, benzodiazepines)

(Chertkow et al., 2008; Massoud et al., 2007; Rosenberg, Johnston, & Lyketsos, 1006)

Future Planning

- It is important to ask clients if they have assigned a Power of Attorney, made a will, or prepared a personal directive
- If they have not, then it may be necessary to provide them with some guidance on how to initiate these tasks
- Information booklets and brochures for the public can be downloaded from the following websites:
 - NS Dept of Justice: <http://www.gov.ns.ca/just/pda/>
 - Legal Information Society of NS: <http://www.legalinfo.org/>

Community Resources

- Clients and families would benefit from information about various resources in the community, including:
 - Public education forums
 - Caregiver support groups
 - Seniors' organizations
 - Community health clinics
- Clinicians must be familiar with local services that can help individuals learn more about MCI, receive support from others, and participate in activities that promote healthy living