Geriatric 4Ms
MENTATION AND MILD COGNITIVE IMPAIRMENT

Goals
- Define mild cognitive impairment
- Report epidemiology of MCI
- Identify MCI risk
- Diagnose MCI
- Treat MCI
MCI definition: a syndrome

- Subjective cognitive problems (amnestic MCI if memory)
- Objective cognitive decline in one or more domains
- Preserved ADLs / IADLS
- No dementia

Prevalence of subjective cognitive impairment

- young old
- old
- old - old
Prevalence of objective cognitive impairment (memory and/or other)

Chart Title

Objective Cognitive Impairment

- young old
- old
- oldest old

Prevalence

- 5 – 37 % when subjectively assessed
- 2 – 20 % when objectively evaluated
- No gender differences
- African Americans higher
- Diabetics higher
Rate of MCI progression to dementia

- 10% per year (5 – 16%)
- Conversion occurs mostly in years 2 - 3 rather than 4 - 5
MCI is Heterogenous

Types of Dementias

- Alzheimer's Disease
- Frontotemporal Dementia
- Lewy Body Dementia
- Parkinson's Disease
- Corticobasal Degeneration
- Huntington's Disease
- Wernicke-Korsakoff Syndrome
- Vascular Dementia
- Mixed Dementia

Dependent

Independent

Mental

Physical
What predicts MCI conversion to dementia?

- Age
- Abnormal neuropsych tests
  - Delayed verbal recall
  - Visual recognition memory
  - IADL deficits

Psychological predictors

- Depression
- Apathy
- Anxiety
- Dysphoria
Physical performance predictors

SLOW GAIT (2X RISK)
MOTORIC COGNITIVE RISK SYNDROME
10 % OLDER ADULT POPULATION

Olfactory dysfunction

Brief Smell Identification Test Lower quartile performers:

• aMCI patients → dementia risk 5X
• Normal patients → MCI 2X
Do biomarkers identify risk of MCI conversion to dementia?

Apo E4

Linked to dementia and MCI but not MCI → Dementia
Disease linkages?

- Metabolic syndrome HR 4.25
- Diabetes HR 2.5

CSF Biomarkers

- Tau or Phospho Tau (Thr 181)
- Low amyloid beta 42
Neuroimaging in MCI

MRI: Temporal lobe atrophy

Medial Temporal Lobe
FDG – PET and Functional MRI for regional brain hypometabolism

PET + impaired episodic memory → 11.7X conversion rate

Amyloid PET: tracer retention predicts conversion to AD

Tau PET: experimental

Diagnostic work up

Look for reversible causes of cognitive dysfunction

▶ Medication side effects
▶ Obstructive sleep apnea
▶ Depression
▶ Vitamin B12 deficiency
▶ Hypothyroidism
Treatment

Aggressive treatment of CV risk factors

- Hypertension (SPRINT TRIAL)
- Cholesterol management

Treatment

- Nutrition: Mediterranean or MIND diet

- Physical activity
  - MCI patients gain 1 point on cognitive exam post aerobic training

- Cognitive training programs
Treatment
DUAL TASK TRAINING FOR POSTURAL STABILITY

Not recommended

- Acetylcholinesterase inhibitors
  - No impact on conversion, high GI side effects

- NSAIDs
  - Despite lower risk of AD with chronic NSAID use, a rofecoxib study showed not effect in MCI patients.
Not recommended

- Ginkgo Biloba: RCT showed no benefit
- Phospholipids: mixed results
- Fish (omega) oils: no effect
- High dose vitamin B complex: no effect

Promising

- Intranasal insulin for aMCI
- GHRH
- Curcumin in cognitively intact
  - Verbal memory
  - Visual memory
  - Attention (Trail A test)
STAGES OF DEMENTIA