Who is at risk of developing Alzheimer’s disease?
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Dr Felix Potocnik¹
Dr Christianne Bouwens²
Prof Susan van Rensburg³

Departments of:
Psychiatry¹, Internal Medicine² & Chemical Pathology³
Faculty of Medicine and Health Sciences, University of Stellenbosch
• World-wide Dementia Population

2010 - 35 million
2013 - 44 million
2030 - 76 million
2050 - 135 million

10/66 concept - Martin Prince
Dementia prevalence

Number of people with dementia in millions

Number of people with dementia in developed and developing

Ferri CP et al. Lancet 2005; 366: 2112 - 2117
MODELS OF COGNITION

- Fast mapping  5 year-old
- Fluid Intelligence  20 year-old
- Crystallised Intelligence  40 year-old
- Mild Cognitive Impairment  60 year-old
An age-associated disease

Source: http://www.alzheimerinfo.de/alzheimer/zahlen/
AD Progression

Abnormal

- CSF Aβ42
- Amyloid imaging
- FDG-PET
- MRI hippocampal volume
- CSF Tau
- Cognitive performance
- Function (ADL)

Normal

Presymptomatic

Time

eMCI  LMCI  Dementia

Prodromal AD

FDG-PET

MRI hippocampal volume

CSF Aβ42

Amyloid imaging

Cognitive performance

Function (ADL)

CSF Tau

Amyloid Deposition precedes Clinical Dementia by Years

Mathis et al.  
MCI patients at higher risk for AD

- Older age (but not older than 85 yrs)
- Lower education
- Lower physical activity
- Recurrent depression
- Uncontrolled vascular risk factors (DM2, HPT, AF)
- WHO 2013 Revihaap Report on Pollution
- MRI hippocampal atrophy
- CSF and PET indicating amyloid accumulation
Predicted global cognition over 12 yrs depending on education

Data was adjusted for age, sex, race, health.  N = 6000 in Chicago.
Rate in functional decline: IADL over 10 years preceding dementia

N=986 : >65yrs (104 =AD)

CACHE COUNTY STUDY

- 6x greater risk of dementia in spouses of patients with dementia
- even after adjustment for known risk factors for development of dementia
  - age
  - sex
  - education
  - socio-economic status
  - APOE genotype
- Greater risk in husbands (x12)

Norton et al, JAGS, 2010; 58:895-900
PREVENTION & SLOWING DOWN ONSET OF ALZHEIMER’S DISEASE

- Hormone replacement therapy (oestrogen)
- Anti-inflammatories
- Apolipoprotein E2 or E3
- Vitamins E and C with/out NSAID’s
- Red wine (resveratrol)
- Intellectual stimulation
- Diet, Coffee, Chocolate
- Physical exercise
- Control of cardiovascular risk factors

SASOP Guidelines, 2012
PERSPECTIVES

• MCI affects 30% of Elderly population
• Some 70% are unaffected
• Overall rate of dementia is 5 – 7 %
• Genetics: Autosomal dominant with incomplete penetrance affects around 1 – 5% of Early-onset AD
• Diagnose and treat early