Alzheimer’s - Dementia results overview

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• EU funded projects on
  – Dementia
  – Alzheimer’s disease

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Dementia

- **Dementia** refers to symptoms in people with brain damage and loss of brain cells
  - *illnesses leading to extensive cell loss result in the person's brain not functioning in a normal manner*
- **The symptoms** are deterioration of mental functioning
  - *Memory*
  - *Attention*
  - *Concentration*
  - *Language*
  - *Thinking ... etc.*
Common cause of dementia

- **Alzheimer’s disease** (*AD* ≈ 50 %)
- **Vascular dementia**
  - *caused by a series of small strokes (infarcts)*
- **Other**
  - AIDS
  - Creutzfeldt-Jakob disease
  - Depression
  - Diffuse Lewy Body disease
  - Down’s syndrome
  - Huntington’s disease
  - Parkinson’s disease
  - Metabolic diseases
  - Use of drugs
Dementia in Europe

Prevalence rate

Source: Alzheimer Europe
The impact of treatment with acetylcholinesterase inhibitors on Europeans with Alzheimer’s Disease (*ICTUS*)

Costs of formal and informal care by region

Annual cost of care (£)

- Northern Europe
- Western Europe
- Southern Europe

Costs of formal and informal care by region
Alzheimer’s (AD) brain
Changes in the brain associated with AD
Early diagnosis - prediction

- Predict the rate of conversion to *dementia*
- Interfere or slow down the *progression*
- Preventive measures
- Early treatment strategies and *targets*
Neuroreceptor Changes In Mild Cognitive Impairment (NCI-MCI)

Concerted Action: 4 centers (2001-03-01 → 2006-02-28)
Coordinator: Rigshospitalet, Copenhagen, Denmark
(Prof. Gitte Moos Knudsen)

• Objectives:
  – Brain imaging (PET, SPECT - neuroreceptors)
  – Predict conversion from MCI → AD
  – Development of early diagnostic tools

• Achievements:
  – Changes in neuroreceptor PET scans predict MCI → AD conversion
**NCI-MCI**

Brain PET (positron emission tomography) scan

Healthy subject, male, 72 years

MCI patient, male, 73 years

Serootonin neuroreceptor binding
Network for Efficiency and STandardisation of Dementia Diagnosis and Differential Diagnosis (NEST-DD)

- **Objectives:**
  - Improve and standardise diagnosis for early dementia
  - Create a database of 18F-2-fluoro-2-deoxy-glucose (FDG) PET scans

- **Achievements:**
  - Changes in FDG PET scans predict MCI → AD conversion
Leukariosis And DISability in the elderly *(LADIS)*

**Concerted Action:** 15 centers (2001-03-01 → 2005-08-31)

**Coordinator:** University of Florence, Florence, Italy

(Prof. Domenico Inzitari)

**Objectives:**
- Leukariosis → Disability
- Predict *conversion to* Dementia
- Leukariosis → Quality of Life

**Disability**
- Motor
- Cognitive

**Achievements:**
- Age
- Hypertension
- Stroke
- Diabetes

*Leukariosis*  
Age-related white matter changes
Concluding remarks

- Substantial progress achieved in early diagnosis and conversion to dementia and AD
- Results will facilitate development of better and timely treatment and prevention strategies
- Program promoted development of EU networks and common approaches over EU centers
- Wide collaboration and interactions continue in post-funding period
Thank you