

# DEMENTIA

... What happens to the brain when someone develops dementia?

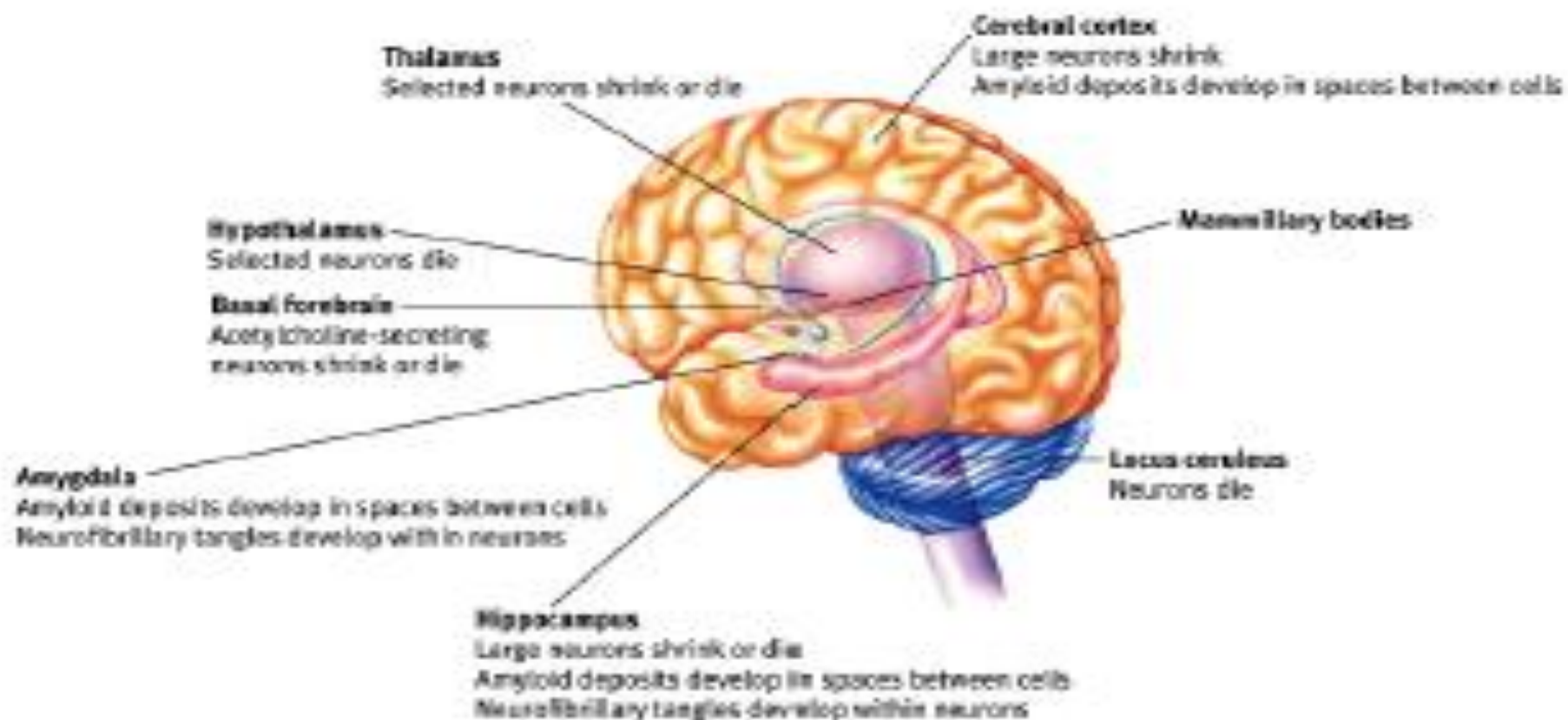
- • What triggers the onset of dementia?
- • What happens to the behaviour of person who has
- dementia?
- How can we diagnose dementia?
- What treatments are currently available for people with dementia?
- • Do they work?

“dementia is the **global impairment** of higher order cortical functions, including

- **Memory (long-term lost as well)**
- **Solve problems of day-to-day living**
- **Social skills**
- **Control of emotional reactions**

-It is often progressive and irreversible”

Royal College of Physicians



# 3 Main types:

- Multi-infarct
- Alzheimers
- Mixed

# Alzheimers type Dementia

- 10% > 65 years
- 20% > 80 years **NOT INEVITABLE!!!**
- lifetime risk is around 26%
- Age specific incidence rises exponentially over 60 years of age – doubles every 5 years
- approx 50% of dementias are of the Alzheimer type –
- Associated with progressive and irreversible decline in **cognitive abilities, behaviour and personality**

# Alzheimers type Dementia-contd...

- Cause? ? Diet?; Injury? Mental trauma?
- significant atrophy of the brain, particularly in the region of the temporal cortex
- neuropathological markers
- neurofibrillary tangles (NFTs)
- senile plaques (SPs)

# Alzheimers type Dementia-contd...

- "Unquestionably the formation and deposition of **b-amyloid protein** is the first visible stage of pathological process which leads to AD"
- **stress response** and acute head injury are associated with  $\beta$ - amyloid precursor protein [ $\beta$ -APP] over-expression
- **NEUROCHEMICAL CHANGES:** reduction in function in most brain neurotransmitters - acetylcholine, nor-adrenaline noradrenaline, serotonin and glutamate , seem most important
- Most significant and dramatic changes in the **CHOLINERGIC SYSTEM**



# Symptoms of DAT:

Progressive cognitive impairments and personality change **WITH INSIDIOUS ONSET**

- Incipient DAT
- Moderate DAT
- Moderately severe DAT
- Severe DAT



# Diagnosis of DAT:

## ■ MOSTLY

- History
- Examination
- Blood/ECG

## ■ SOMETIMES

- Neuropsychological
- Behavioural/Activities of Daily Living

## ■ RARELY

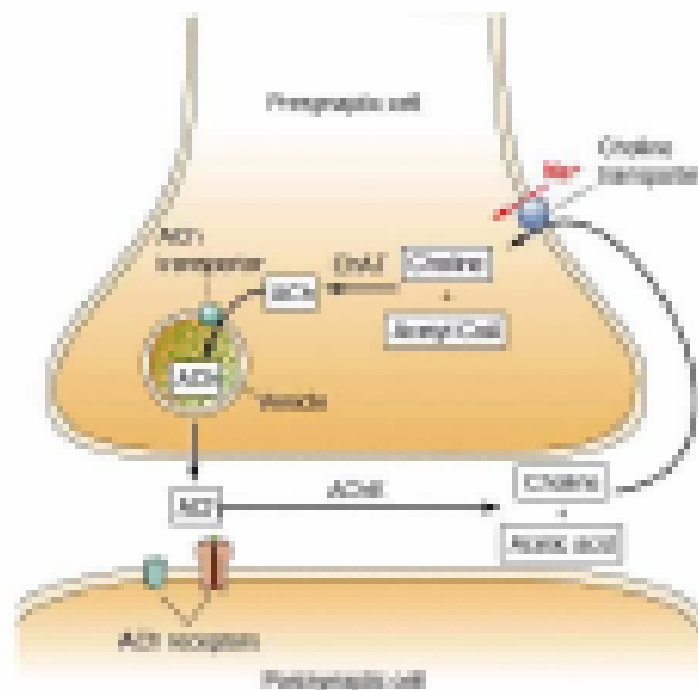
- Neuroimaging

# 4 types of vascular dementia

- acute onset
- multi-infarct (predominantly cortical)
- subcortical
- mixed cortical and subcortical VaD

# 3 possible points of intervention

- Precursor loading
- Inhibiting breakdown of transmitter
- Direct stimulation of receptors post- or pre- synaptically



# Summary-Conventional treatments

**cholinergic replacement therapy...: donepezil, galantamine, and rivastigmine**

- Tested in 32 randomized, placebo-controlled trials
- Typically assess performance over 3 or 6 months (followed by open label extension trials)
- efficacy is relatively modest
- Small but significant benefit in favour of treatment compared with placebo
- withdrawals due to adverse events significantly higher for treatment than placebo for all three drugs

Treatments for Alzheimer

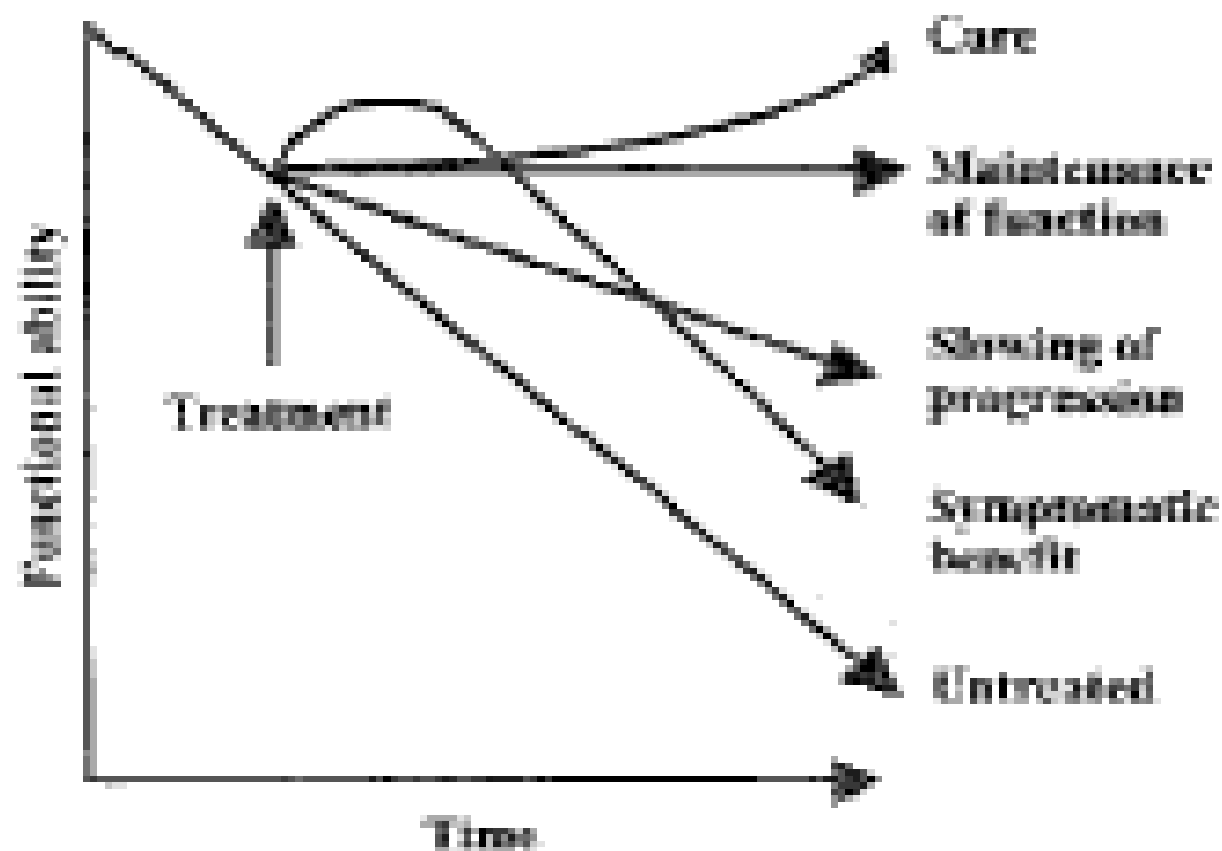
- **NMDA receptor antagonist-Memantine**
- **Oestrogen**
- **Anti-inflammatory drugs**
- **Anti-hypertensives**
- **Immunisation**

# Evaluating treatment effects

- ADAS-cog: Alzheimers Disease Assessment
- Schedule - cognitive subset - memory, attention, earning, orientation
- MMSE: orientation, short term memory, attention, confrontation naming
- Clinician's Interview-based Impression of Change plus **caregiver Input** - functional skills, behavior, cognitive skills
- Disability Assessment in Dementia - activities of daily living assessment
- Progressive Deterioration Scale - quality of life

# Treatment Outcomes in Alzheimer's Disease

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# YOGA AND DEMENTIA



# The Concept of the Body Structure in Yoga

All of us have five levels of existence

...from gross to subtle..

- \**Annamamayakosa* → The physical structure
- \**Pranamamayakosa* → The level of life energy
- \**Manomamayakosa* → The mental process
- \**Vignanamamayakosa* → The level of discrimination  
& choice
- \**Anandamayakosa* → The most subtle of all...  
pure bliss our REAL state!

## Different Yoga Practices Act Specially At Each Level

Level	Practice(s)
1 - Annamaya Kosa	Loosening exercises Asanas(postures) Kriyas(Cleansing practices)
2 - Pranamaya Kosa	Kriyas Breathing exercises Pranayama(yoga breathing)
3 - Manomaya Kosa	Meditation Devotional sessions
4 - Vignamaya Kosa	Lecture Looking inwards
5 - Anandamaya Kosa	Continuing to be relaxed & blissful throughout the day

# YOGA - DEMENTIA

- At the physical level:
- Yoga postures – practised passively?
- Loosening exercises – *sithilikarana vyayama* – help to reduce rigidity – stimulates the brain
- Diet

# Practices at the Subtle energy level

- **Cleansing techniques - *Kriyas*** –  
*Kapalabhati*: Clinical impression – tremor  
reduces (short-term)
- **Voluntary regulated breathing- -**  
*Pranayamas* – reduce anxiety
- *Pranic* energisation technique – deep  
relaxation

# Practices at the mental level

- Meditation
- Devotional sessions

# **STRESS PRODUCING FACTORS**

- \* Lack of knowledge**
- \* “ ‘I’ness”**
- \* Strong likes**
- \* Strong dislikes**
- \* Fear (of death)**

**Patanjali, 600 B.C.  
(PYS II - 3)**

## Yoga at the intellectual level

“Repeated thinking about objects leads to attachment, attachment to desires, desires to anger which leads to lack of awareness and discrimination... and one is lost.”

**Bhagwad Gita 2/62,63**



