ALZHEIMER'S DISEASE (AD)

A Summary Sheet of Information and Intervention Suggestions
With an Emphasis on Cognition

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CHARACTERISTICS

Brain disorder
Most obvious symptoms: memory loss and cognitive impairment
Progression: increasing severity of symptoms over time (a progressive dementia)
Onset: insidious; age 40-90, usually over age 65 (median age 73.5)
Duration: average 8 years from onset to death (may vary with time of diagnosis)
Cause unknown
Cure: no cure at this time, but there is treatment to reduce symptoms
Diagnosis verified at autopsy
Is the most common cause of dementia (60% of all dementia cases)
Affects 10% of all people over age 65
Risk factors: age, APOe4 gene, Down's Syndrome, family history
Hereditary in 10% of cases
Course: gradual, steady decline, decline 2-4 points per year on Folstein Mini-Mental State Exam, no spontaneous improvement
Alois Alzheimer first described neuropathology in a 51-year-old woman in 1907

NEUROPATHOLOGY

Neuritic plaques outside of cells in brain
Neurofibrillary tangles inside of cells in brain
Atrophy (i.e., loss) of brain tissue; cell death
Acetylcholine reduction

LOCATION OF CORTICAL BRAIN CHANGES

Cortical refers to the cortex (i.e., the outer layer) of the brain
Changes (pathological abnormalities) occur in the cortex and in internal (subcortical) structures of the brain
Changes (pathological abnormalities) occur on both sides of the brain
Order of cortical brain structures affected, creating stages:
- Hippocampus (subcortical)
- Parietal lobes
- Temporal lobes (posterior then anterior)
- Frontal lobe

COGNITIVE CHANGES

Memory impairment first obvious symptom
Visuospatial perception and skill impairment:
- Difficulty recognizing distance between objects and from self

Difficulty arranging objects in space
Language impairment:
    Difficulty understanding and producing speech
    Difficulty reading and writing
    Difficulty understanding what is being read, when can read
Insight impaired
Judgment impaired
Disorientation
Concentration impaired
Abstract processing impaired
Attention impaired
Sense of time impaired
Ability to analyze, plan, organize impaired
No sensory loss (though may occur with normal aging)
No focal deficits
No disturbance of consciousness
Person becomes increasingly dependent on environment throughout course

EMOTIONAL CHANGES

Depression throughout course, especially in early stages
Emotional lability (switch quickly from one emotion to another)
Less expression of emotional intensity and switching in later stages

BEHAVIORAL CHANGES

Get lost occasionally in early stages; increasingly often throughout course
Loses objects occasionally in early stages; increasingly often throughout course
Distressing behaviors usually triggered by anxiety, confusion and misinterpretation of environment in middle stages
Distressing behaviors usually triggered by physical pain and discomfort in later stages
Gait and physical movements preserved until later stages
Incontinence only in later stages
Hallucinations when they occur, occur in later stages

INTERVENTIONS: Non-medicinal

Assess individual regularly over time as dementia progresses
Modify expectations and intervention as change occurs
Express warmth and affection for person, verbally and nonverbally
Respect person as adult; avoid treating person as a child
Stay calm and help the person feel relaxed
Compensate for the person's cognitive impairment to help person feel good and comfortable and to prevent fatigue and embarrassment

Assess and modify environment, caregiver interactions and daily routines over time throughout course
Maintain appropriate stimulation that engages person
    Avoid meaningless or confusing stimulation
Use touch as appropriate when communicating
Simplify daily routines and tasks
Provide information through cues in environment and when communicating
Ensure cues are understandable to person
Avoid arguing with the person
Address person's feelings and then distract when person engaged in distressing behavior
Explain to person what caregiver is doing and intends to do
Use concrete requests and concrete cues
Compensate for sensory changes that occur with normal aging

MEDICAL TREATMENTS

Cure unknown
Reduce loss of acetylcholine (inhibit acetylcholinesterase)
    Cognex, Aricept, Exelon, Reminyl
    Most effective in mild-moderate stages
Memantine (regulates activity of glutamate)
    Can be effective in severe stages (for persons with MMSE score of 3-14)
Cholinergic medications for behavioral symptoms
Antioxidants
Anti-inflammatory agents
Neurotrophic compounds
Anti-amyloid deposition
Vitamin E in high doses (only under doctor's care) (effectiveness is controversial)
To extent AD associated with cardiovascular risk factors, can prevent by reducing cardiovascular risk factors: Exercise, Diet, cholesterol-lowering medications (statins) such as Lipitor

COMMENTS

In 1984 criteria for clinical diagnosis created
Red flags that suggest a disorder is probably not AD:
    Onset before age 60 years
    Sudden onset
    Rapid progression
    Symptoms that do not occur in the order of typical AD stages
    Behavior changes or hallucinations occur much earlier than memory impairment
    Incontinence occurs before later stages

Seizures occur before later stages
(Exception: Downs may cause earlier seizures)
Abnormal neurological symptoms (impaired gait, falls, weakness) occur before later stages

RESOURCES

http://www.ninds.nih.gov/disorders/alzheimersdisease/alzheimersdisease.htm (National Institute of Neurological Disorders and Stroke NINDS)
http://www.alzheimers.org (Alzheimer's Disease Education and Referral Center ADEAR)
http://www.alz.org (Alzheimer's Association)
http://www.med.umich.edu/madrc/ (Michigan Alzheimer's Disease Research Center MADRC)

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