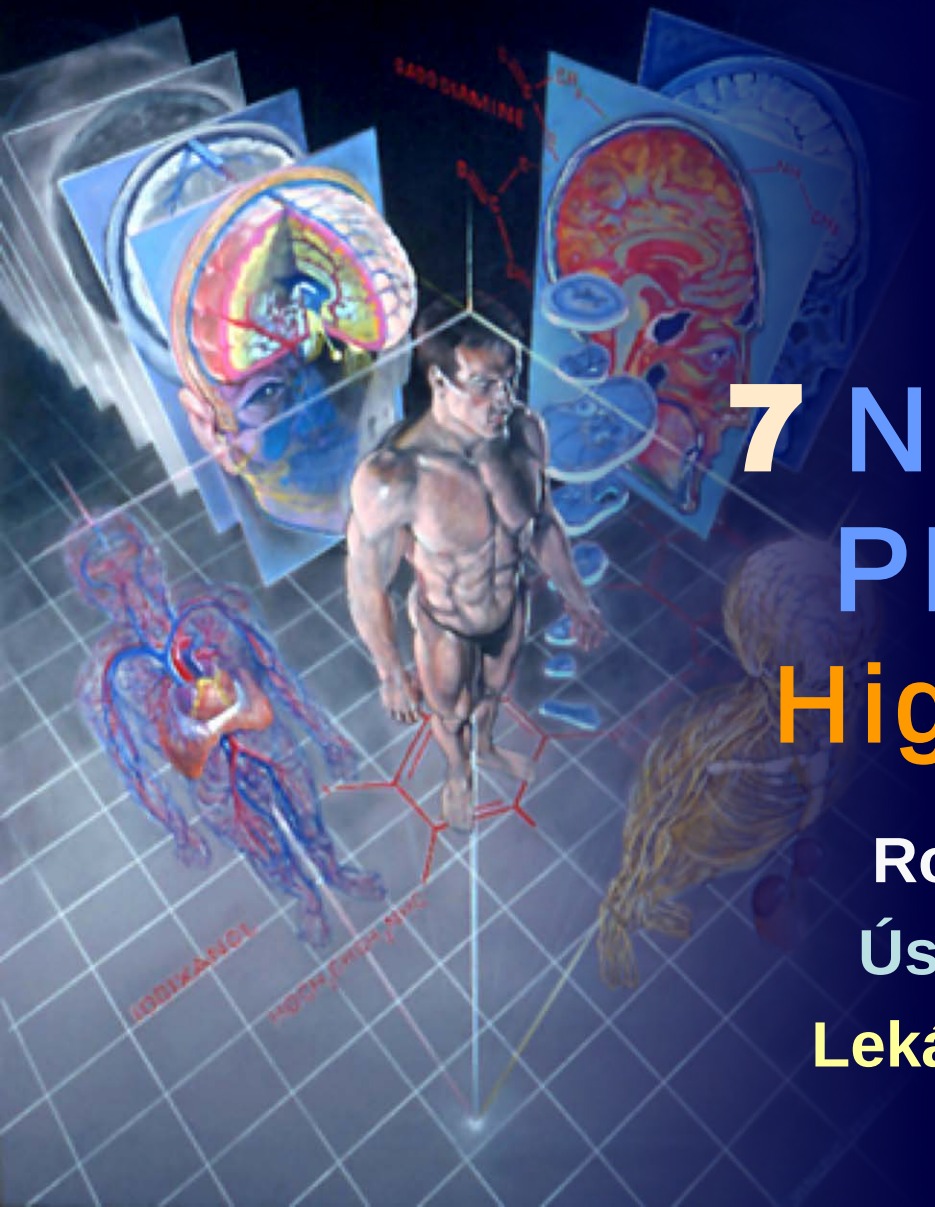
Lectures
General medicine
Stomatology
Special pathophysiology
1995 -2025



7 NEUROPATHO-PHYSIOLOGY

Higher nervous 1

Roman BEŇAČKA, MD, PhD

Ústav Patologickej fyziológie

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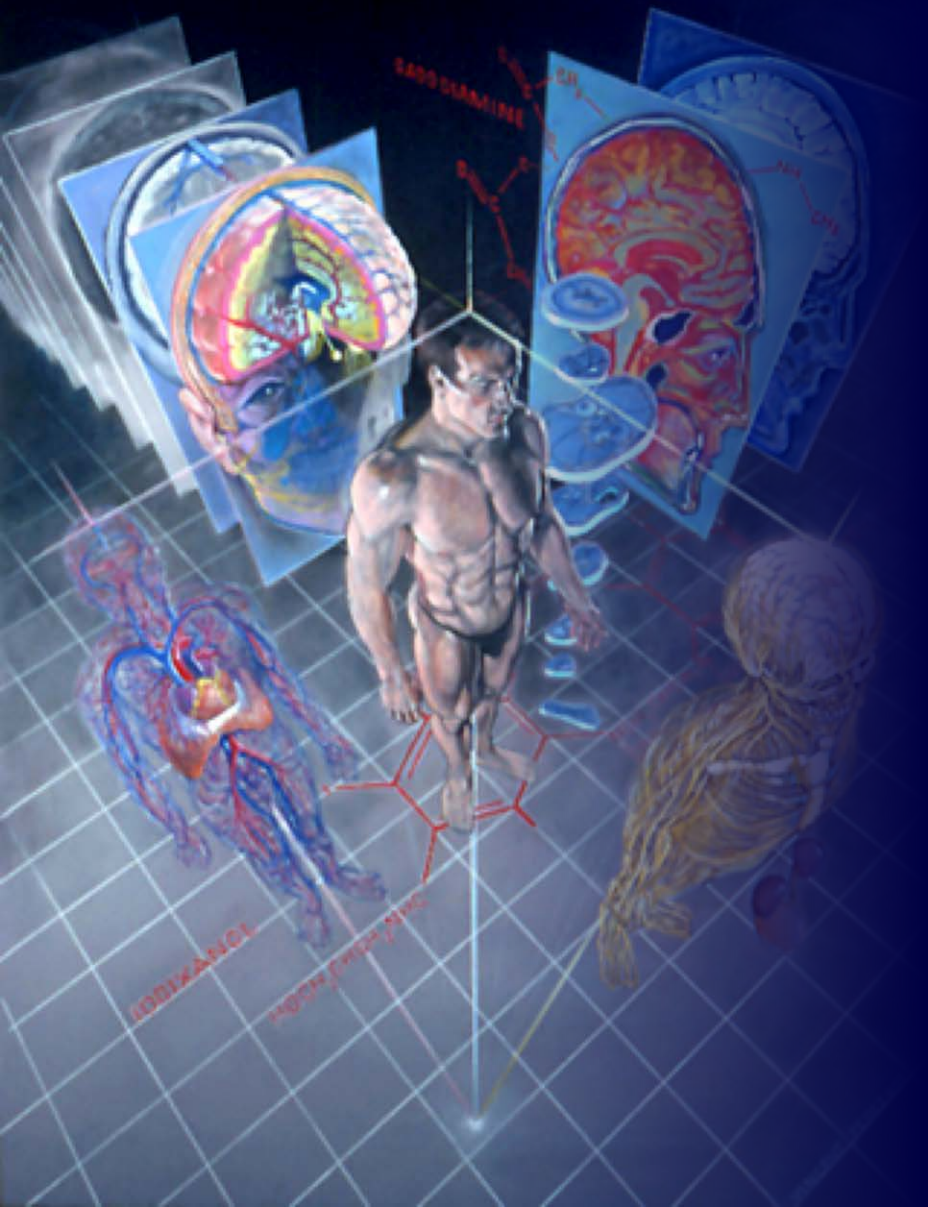
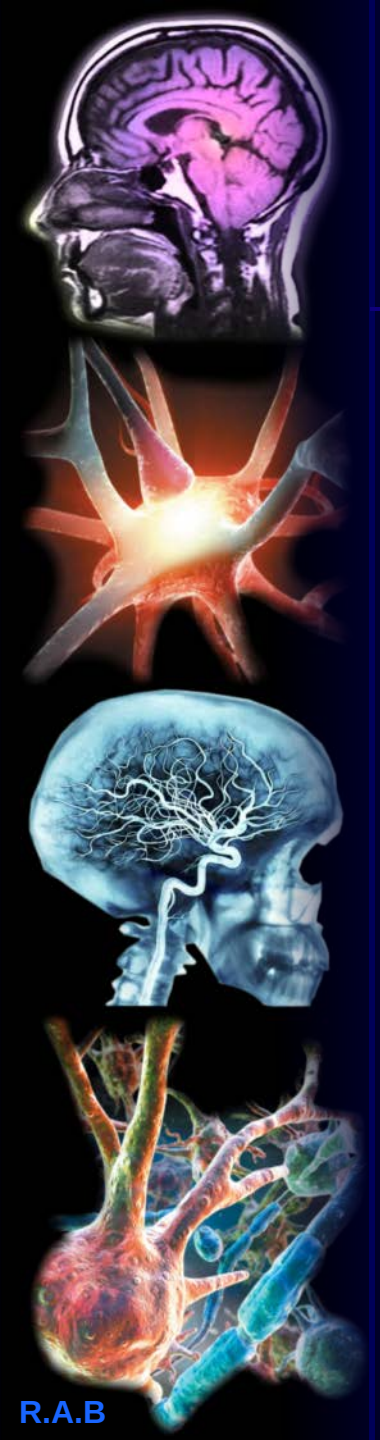


Memory disorders

1



Terminology

Definition: ability to store and retrieve past data, events and images at will

Modified by:

⇐ consciousness (general and selective attentiveness, alertness)

⇐ interest (motivation, mood, reward, etc.)

Memory characteristics:

1. Exactness (details, objectivity)
2. Familiarity (confidence)
3. Novelty (new vs. old)
4. Orientation (time, space)

Memory skills:

mechanical (kids), logical, deductions (adults), visual, auditory, etc.

Phases :

1. Reception (encoding) - bettern in youth worse in elderly
2. Retention (storage)

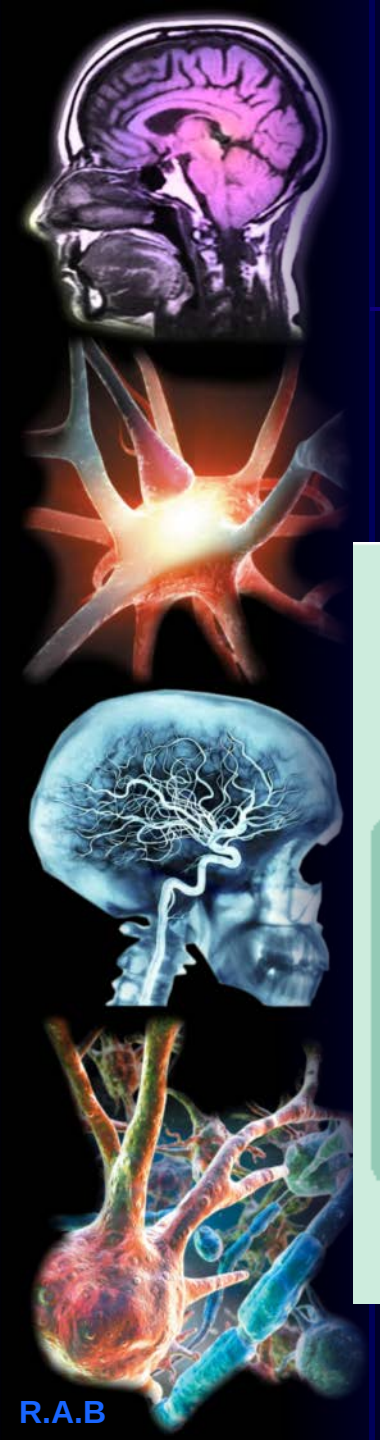
Ebbinghaus curve of forgetfulness

3. Recall (retrieval, reproduction)

Ribot gradient (in retrograge amnesia one tends to loose recent memories compared to lod ones)

Attention Encoding Storage Retrieval

R.A.B



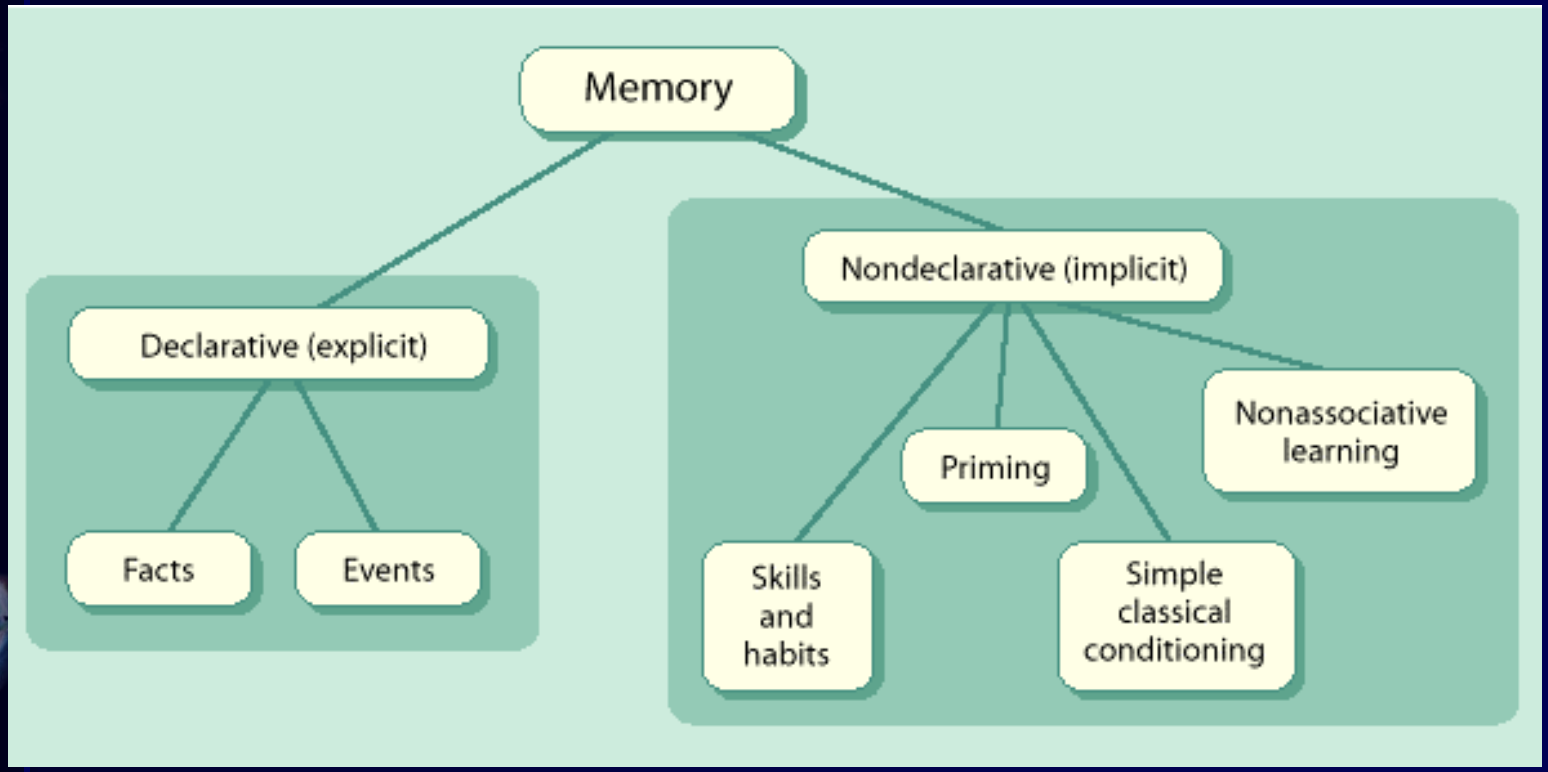
Forms of memory

According to duration

- very short (register) (ms, sec)
- short (min, hours)
- long term (years)

According to processing:

- working memory
- permanent memory



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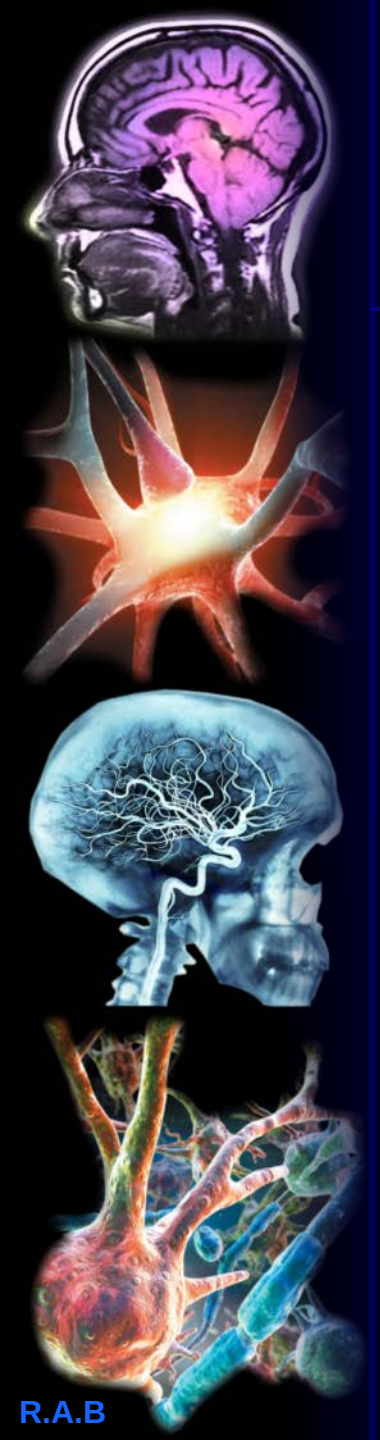
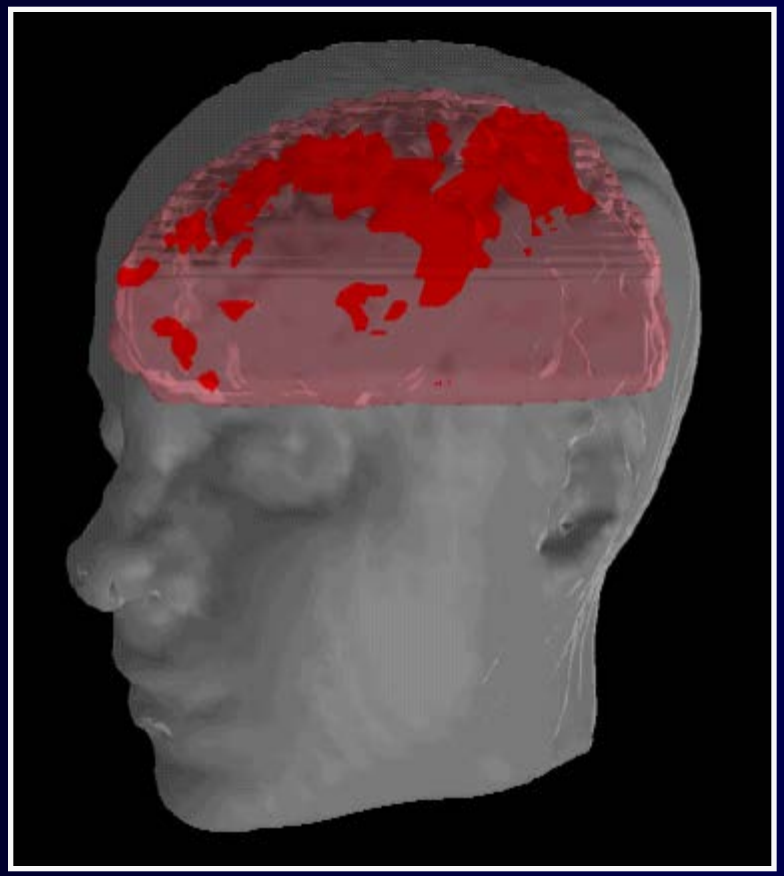
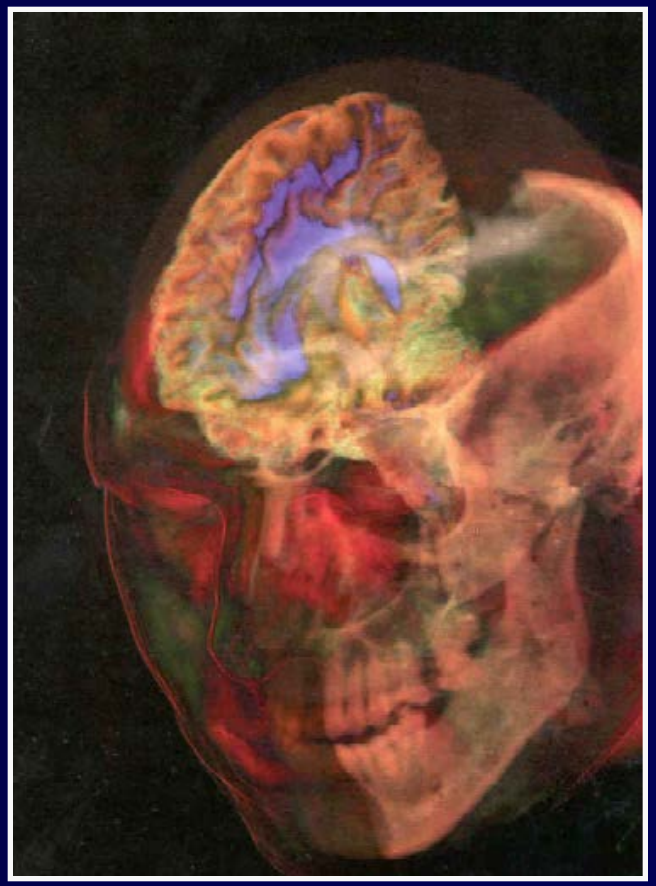


- No theory that explains why we forget
- Forgetting follow some rules - not known
- Some rehearsed knowledge will never be forgotten (‘permastore’)

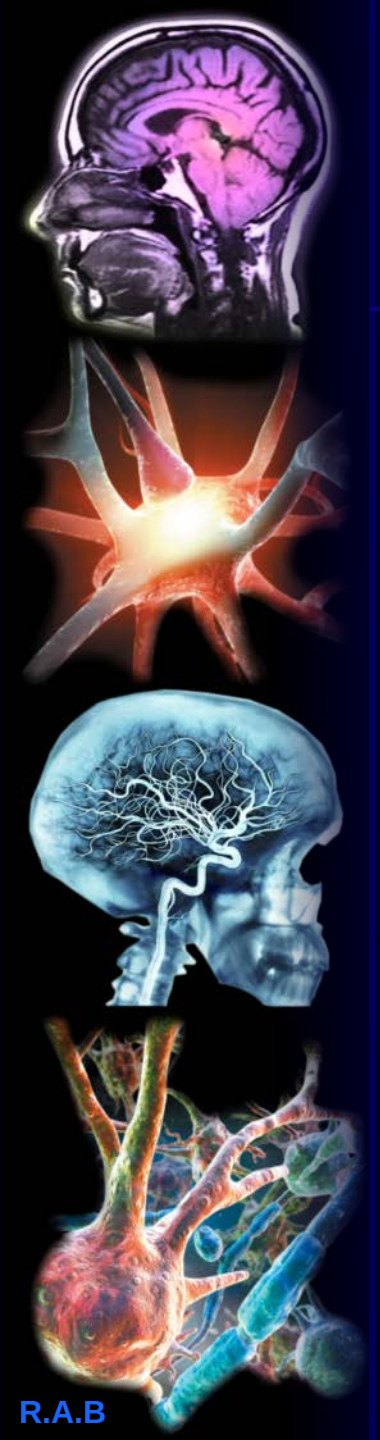


Working memory



Permanent memory

R.A.B



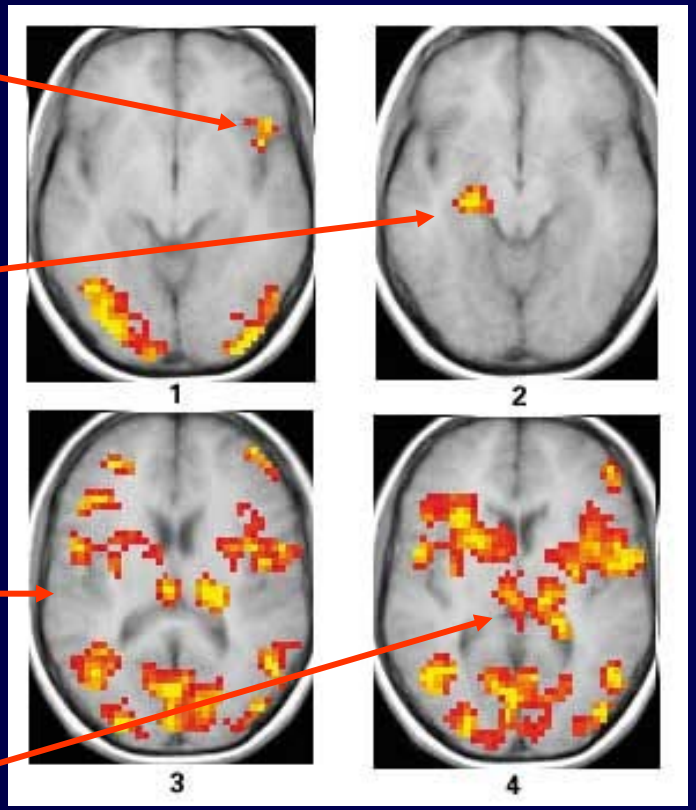
Simple visual recall

1. Perception of new face - visual and frontal cortex

2. Imagination of recently seen face - hippocampus

3. Comparison with previously remembered faces - visual cortex + parietal + frontal assoc. cortices

4. Decission whether the face seen before - frontal cortex



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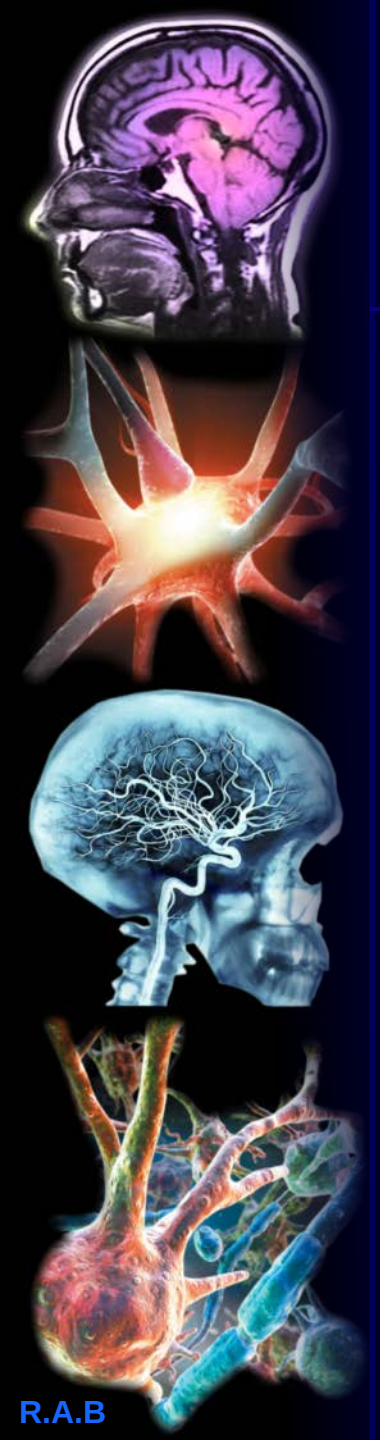
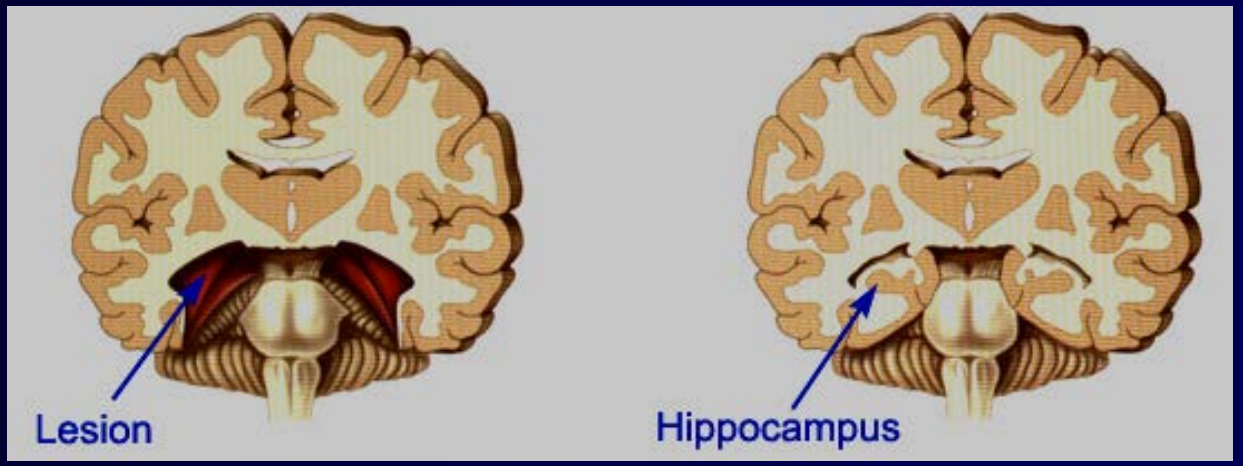


Memory consolidation

Medial Temporal Lobe (MTL) intermediary memory system – ventromedial temporal l. + hippocampus (Squire, Zola-Morgan, 1991)

- Serves as notebook, permanent camera
- High plasticity, low stability, fast tracking /fast forgetting of events
- Replay of event to cortex (sleep,mental activity), gradual storage into permanent memory
- Affected by emotions, motivation, personality etc.,



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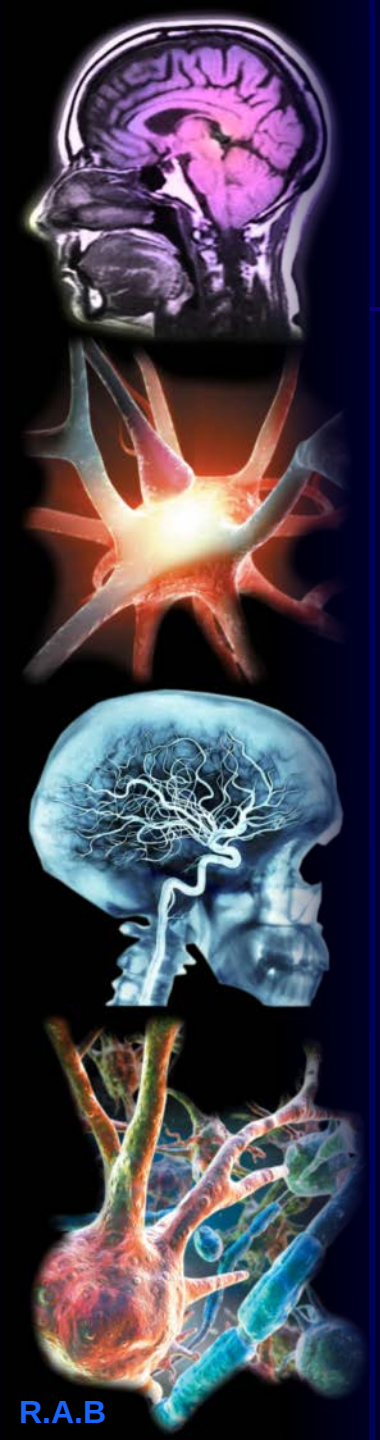


Disorders of memory I

Amnesia

- retrograde (RA), anterograde (AA) (post-traumatic)
- total (trauma) vs. partial (delirium)

Dg: trauma (bilateral temporal damage, prefrontal laesions)

Hypoxia, ischaemia, avitaminosis B1 (Wernicke-Korsakov sy.), epilepsia, malnutrition CO poisoning, commotio, contusion, degenerative brain diseases

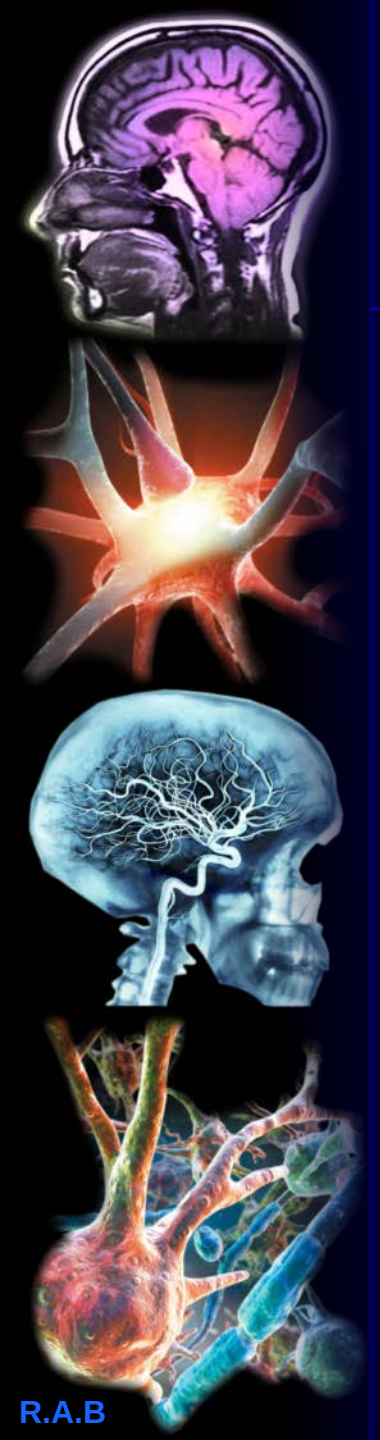
Hypermnesia (↑ recall + ↑ sureness <-> ↓ accuracy + ↓ storage)

Dg: mania, delirium, schizophrenia

Hypomnesia (↓ recall + ↓ sureness <-> ↑ storage ↑ pr)

Dg: drunkeness (alcohol intoxication), brain trauma (commotio)

R.A.B

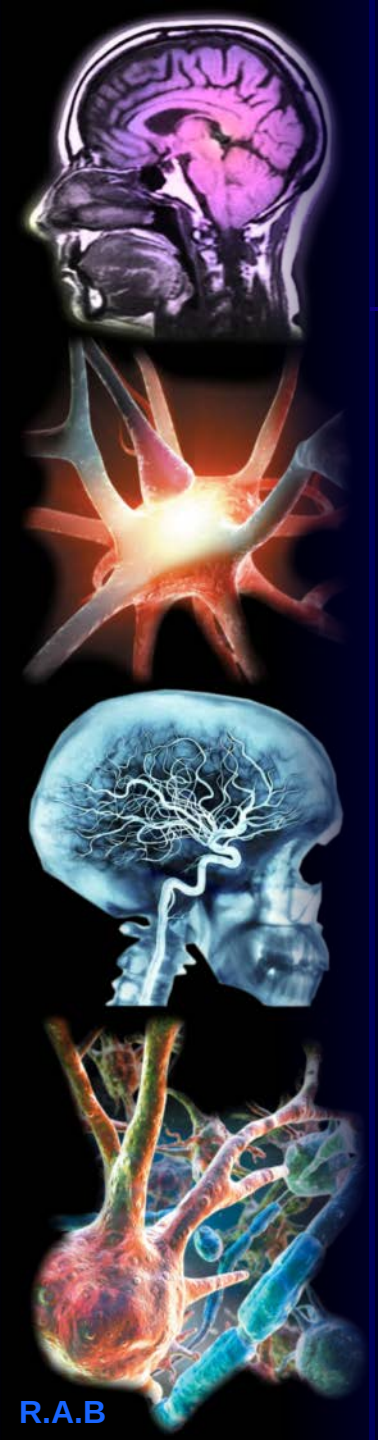


Causes of amnesia

- **Alzheimer's disease:**
  - begins with retrograde amnesia
  - progresses slowly over many months or years to anterograde amnesia, later severe & permanent amnesia
  - Assoc. sy.: agitation, inability to concentrate, disregard for personal hygiene, confusion, irritability, emotional lability
  - Progressive sy. : aphasia, dementia, incontinence, and muscle rigidity

- **Cerebral hypoxia**
  - total amnesia for event
  - sensory disturbances (numbness and tingling) after recovery from hypoxia (carbon monoxide poisoning, acute respiratory failure)

R.A.B

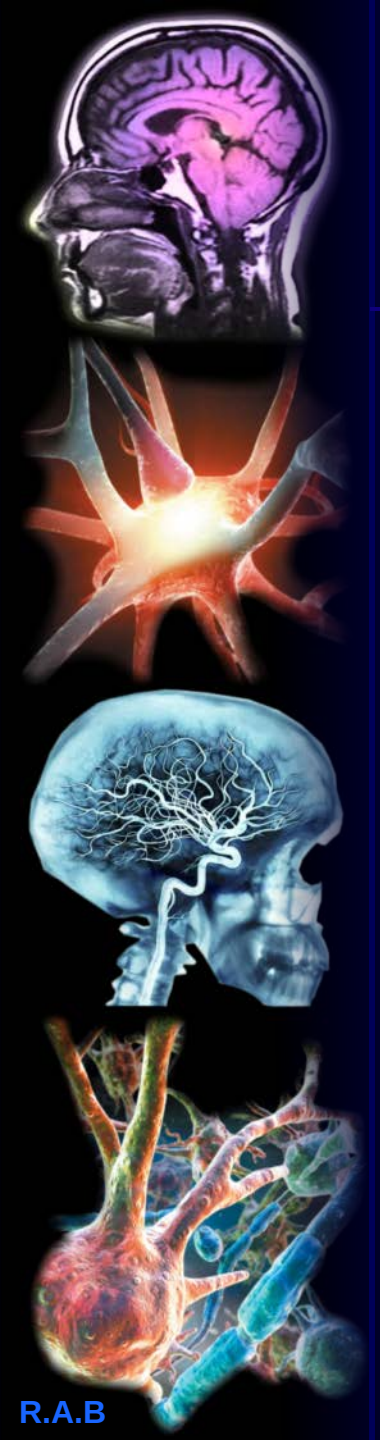


Causes of amnesia (cont.)

- **Head trauma**:
  - amnesia may last for minutes, hours, or longer depending severity
  - brief retrograde + longer anterograde amnesia + persistent amnesia about the traumatic event.
  - in severe head trauma permanent amnesia or difficulty retaining recent memories
  - Related findings: altered respirations, headache; dizziness; confusion; visual disturbances, such as blurred or double vision; and motor and sensory disturbances, such as hemiparesis and paresthesia, on the side of the body opposite the injury

- **Temporal lobe surgery**
  - brief, slight amnesia (removal of both lobes results in permanent amnesia)

R.A.B

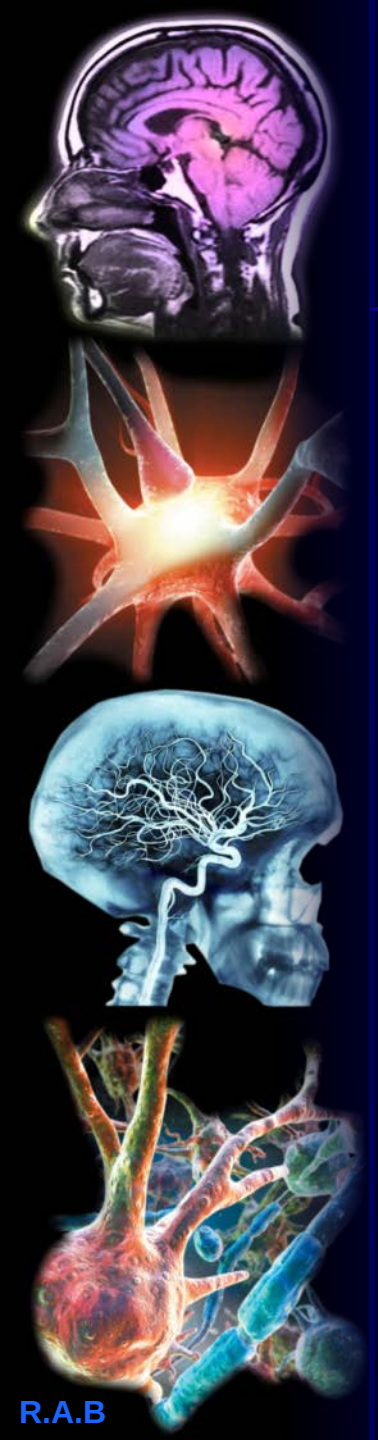


Causes of amnesia (cont.)

- **Herpes simplex encephalitis (Encephalitis amnesia)**
  - severe and possibly permanent amnesia upon recovery from encephalitis
  - associated findings: sy. of meningeal irritation (headache, fever, altered LOC)
  - seizures and various motor and sensory disturbances (paresis, numbness, and tingling)

- **Seizures (temporal lobes) (epilepsy amnesia)**
  - occurs suddenly, lasts for several seconds to minutes (recall an aura or nothing at all)
  - irritable focus on the left side: amnesia for verbal memories,
  - irritable focus on the right side: graphic and nonverbal amnesia.
  - Associated signs and symptoms: decreased LOC during the seizure, confusion, abnormal mouth movements, and visual, olfactory, and auditory hallucinations

R.A.B

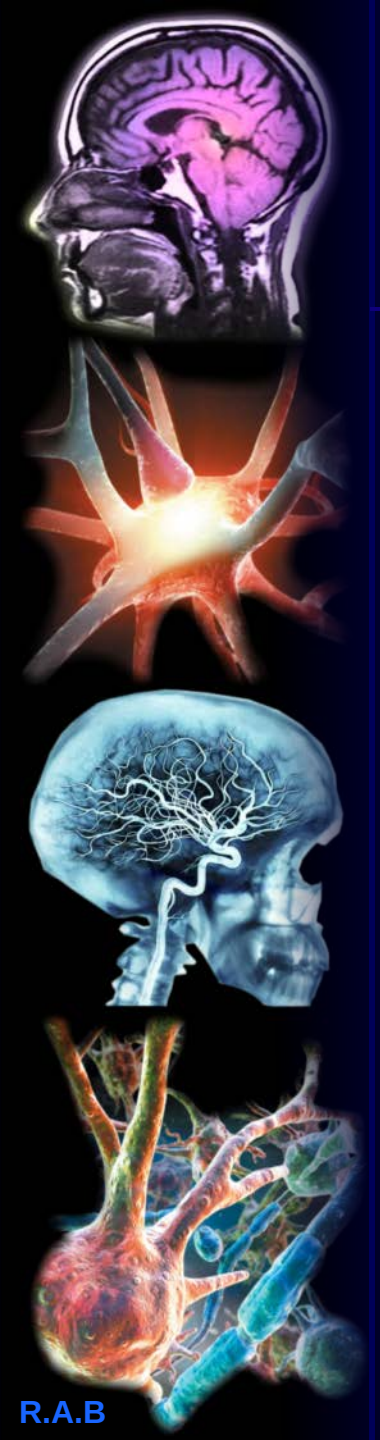


Causes of amnesia (cont.)

- **Electroconvulsive therapy**
  - sudden onset of retrograde or anterograde amnesia
  - amnesia lasts for several minutes to several hours, but severe, prolonged amnesia occurs with treatments given frequently over a prolonged period

- **Wernicke-Korsakoff syndrome**
  - Retrograde + anterograde amnesia (can become permanent without treatment)
  - Other sy: apathy, an inability to concentrate or to put events into sequence, and confabulation to fill memory gaps.
  - Other sy: diplopia, decreased LOC, headache, ataxia, and symptoms of peripheral neuropathy, such as numbness and tingling

R.A.B

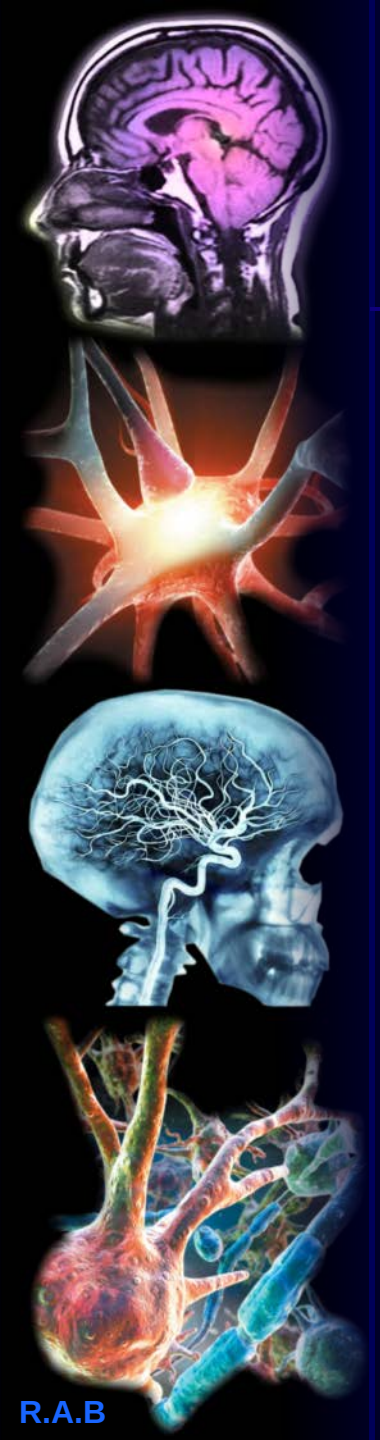


Causes of amnesia (cont)

- **Hysteric amnesia**
  - begins and ends abruptly + typically accompanied by confusion ;
  - complete and long-lasting memory loss

- **Drugs**
  - Anterograde amnesia can be precipitated (general anesthetics - fentanyl, halothane, and isoflurane; barbiturates, most commonly pentobarbital and thiopental; and certain benzodiazepines, especially triazolam

R.A.B



Disorders of memory II (Dysmnesia)

Paramnesia - impaired timing of memory traces

Ekmnesia (e.g.recent event recalled as far past event)

Duplicity (e.g.division of one event into 2 different events) joining of two different events into 1 event)

Allomnesia – distorted sureness (certainty) of memory traces

Cryptomnesia (hidden memory) - experiences that people believe to be original but which are actually memories they've forgotten.

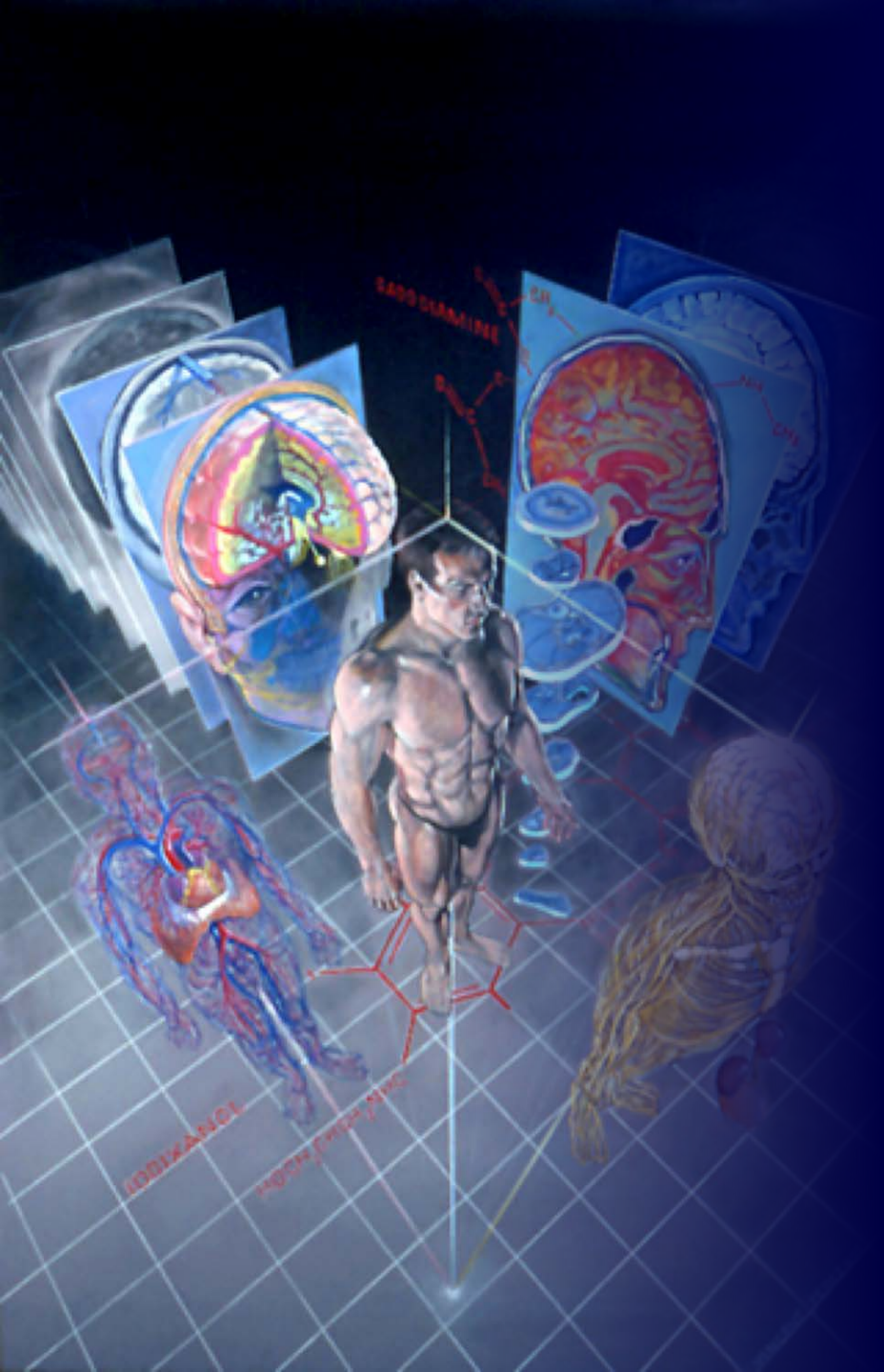
Illusions of memory – sureness that certain pictures, sounds or events happened before (illusiones deja vu); people remember events that never happened

Confabulations (false memories) - fantasy that has unconsciously replaced real facts in memory (e.g.abduction by alliens)

Memory hallucination (Pseudoreminiscence) – experience of memories to something that never existed (e.g.

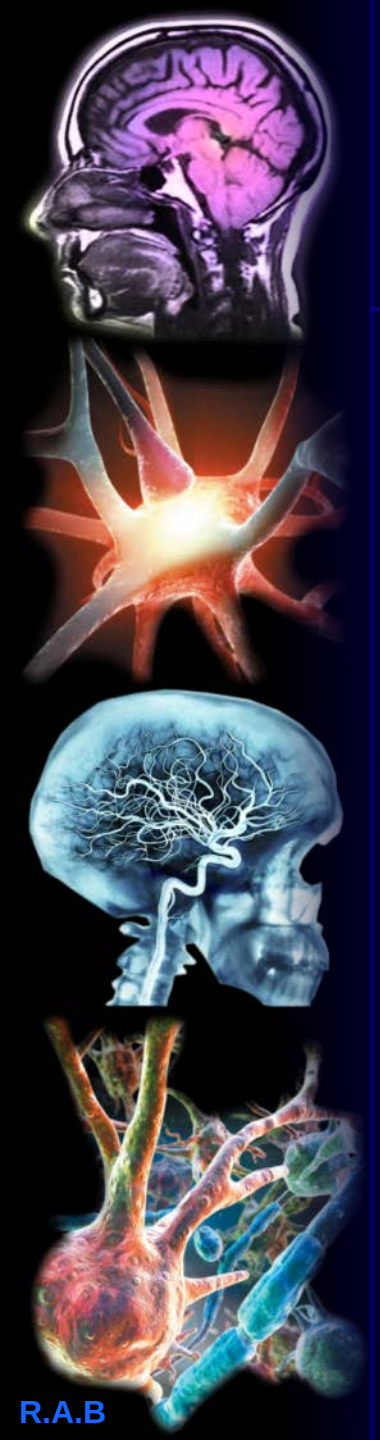
Pseudologia phantastica - the form of falsifying reality (not ordinary lying, or delusion, or false memory)

R.A.B



Disorders of intelect

2

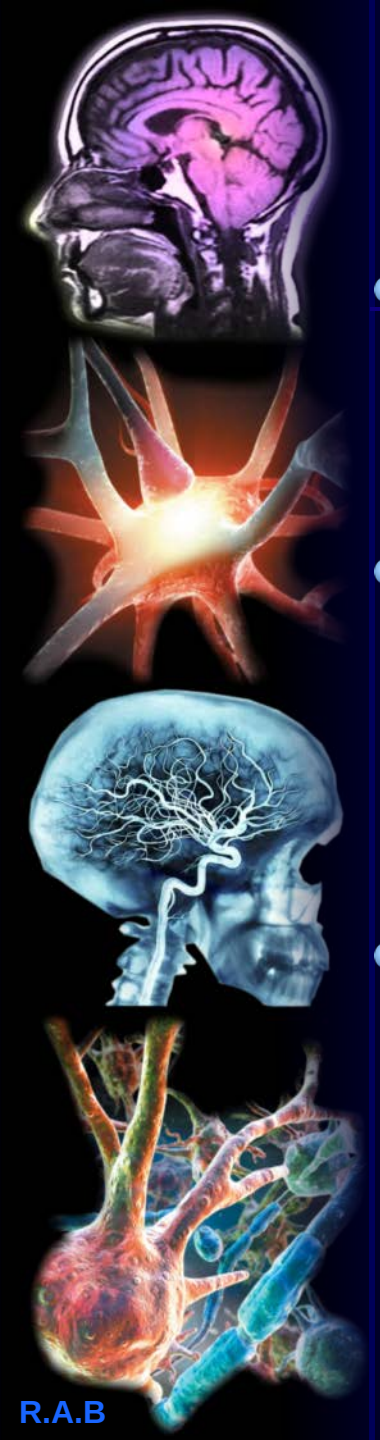


Terminology

- Intellect (mind) – complex of psychic functions defining the persons abilities to dominate in certain area; inborn and acquired mental comprehensions, knowledge, solutions, experiences + usage of this knowledge (memory, abstract thought, analysisi and synthesis, creativity, motivation, judgment, vocabulary)
- Intelligence – hereditary basis of intelect (individual abilities)
- Talent – well developed intellect in certain (mostly) physical dispositions ane activities (art, science, technical skills
- Geniality – exceptional ingenuity and creativity in certain rather abstract areas of human phynking(science)

- Disorders
  1. Mental retardation (oligophrenia, mental deficiency) – inconsistent or incomplete development of intellect
  2. Mental degradation (dementia) – reduction , or gradual or sudden loss of intellect after 2nd y of life

R.A.B



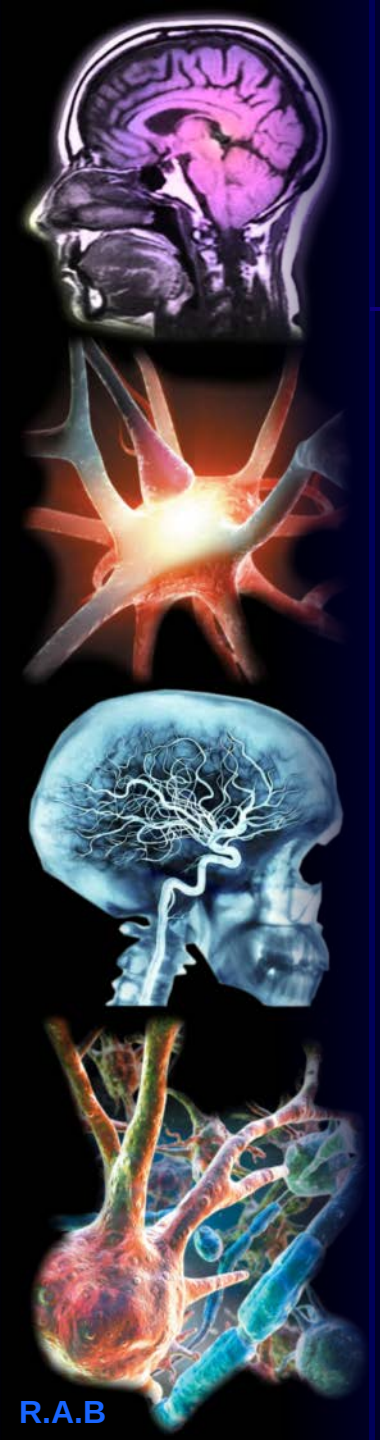
1. Mental retardation

- Def.: incomplete psychomotoric development of speech, abstract thoughts, cogitation, reasoning, memories, learning disabilities incl motor skills (Psycho-motor r.), Social oligophrenia

- Etio:
  - hereditary (phenylketonuria, fragile X chromosome),
  - inborn – congenital (Down sy., Klineffelter sy., Turner sy.),
  - perinatal (labor injury), postnatal (infection, intoxication)

- Grades:
  1. Mental retardation - moron, freeble-minded IQ 70-80
  2. Mental deficiency (hypophrenia):
     - Light (debility) IQ 50-70 (mainly abstraction)
     - Mild (imbecility) IQ 35-49 (speech)
     - Severe (idiotism) IQ 20-34 (most qualities)

R.A.B



2. Mental degradation (dementia)

Def:

- extinction of mental abilities (memory), practical skills, verbal communication, social habits; retrieval of new knowledge mostly affected
- develops over time (experiences may compensate learning disabilities)
- parcial demencia vs. total demencia
  - Heller' infantile demencia (demencia occurring in childhood)
  - Pseudodemencia – mental supression - „purposeful" (specific) deficit for certain tasks, events memories, e.g. stressful part of life (violence)

Pat: gray matter atrophy, frontal-parietal area

Sy: disorder of intellect+ memory+ emotion+ action

1. Disorders of attention -> learning, retention of data
2. Disorientation in time and space, delayed thinking, loss of criticism confabulations, depressive mood, dysphoria, psychomotoric apraxia
4. Wasting of self- care practise, ethical limitations, hrubosť, abusiveness, bezohladnosť, irresponsibility, anosognosia

R.A.B

Mental degradation –syndromes

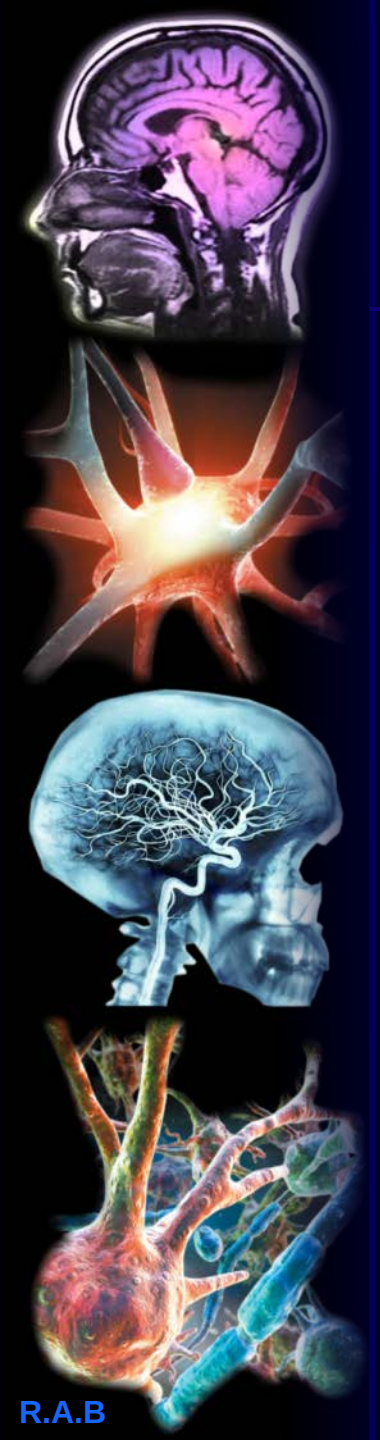
1. Organic psychosyndrome (trauma, inflammation, hypoxia, intoxication (CO), ATS, hereditary & acuired neurodegenerative diseases

2. Dementia syndrome - disordes of memory and thoughts prevail

- Common reasons: Alzheimer' disease, cerebrovascular disorders - multiinfarction dementia, AIDS - dementia complex, Parkinson' disease, metabolic syndromes, cerebral tumors, hydrocephalus
- Rare reasons: neusyphilis, Huntington' disease, Creutzfeld-Jakob' disease, Wilson' disease

3. Pseudodementia – without organic damage, rather specific involvement

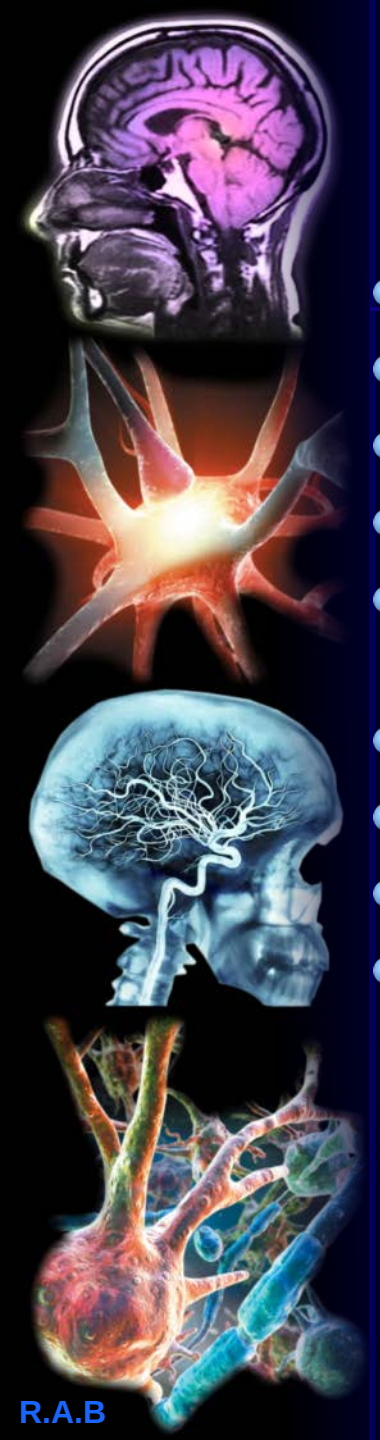
4. Korsakoff' syndrome – memory impairment, confabulations (trauma, intoxications, imflammations in CNS)



Dementia

- Def.: Dementia (loss of mental capabilities) is a mental illness arising from organic brain damage of various origins, leading in varying degrees and sequence to deterioration of cognitive functions, including memory, attention, learning, speech, gnosis, praxis, but also personality, motivation and consciousness
- According to ICD-10, a cognitive deficit is always present (decline in memory, especially new memory) but no obscured consciousness is present; the disorder is chronic (lasts at least 6 months); varying degrees of emotional control or motivation or change in social behavior (lability, irritability, apathy, incompetence to vulgarity, etc.)

R.A.B



Dementia - Evaluation

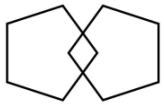
- Time orientation
- Spatial orientation
- Repetition of speech
- Attention, counting
- Short-term verbal memory (recall)
- Dysphasia
- Agraphia, drawing,
- Dyspraxia (constructive
- abilities)

MINI MENTAL STATE EXAMINATION (MMSE)

Name:

DOB:

Hospital Number:

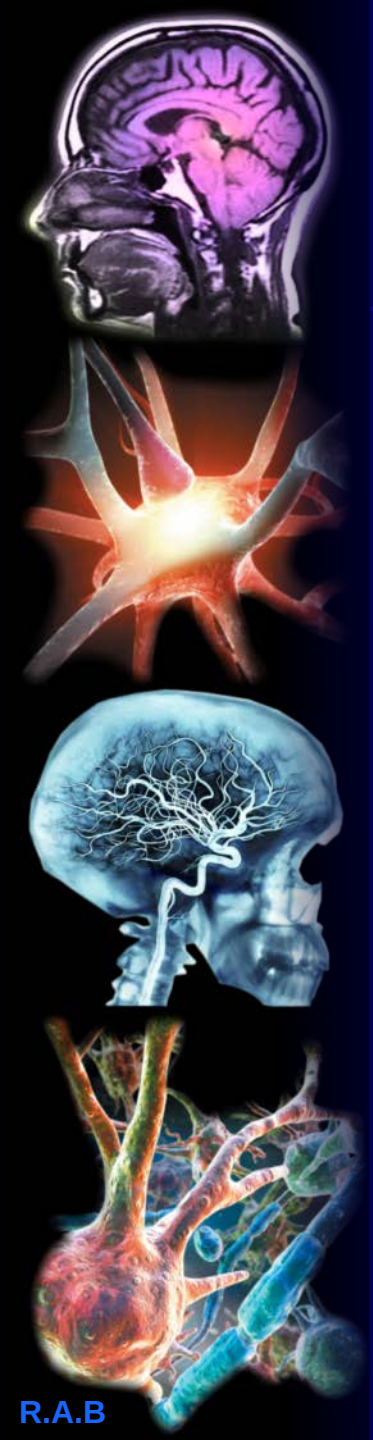
One point for each answer	DATE:		
ORIENTATION Year Season Month Date Time	...../ 5	...../ 5	...../ 5
Country Town District Hospital Ward/Floor	...../ 5	...../ 5	...../ 5
REGISTRATION Examiner names three objects (e.g. apple, table, penny) and asks the patient to repeat (1 point for each correct. THEN the patient learns the 3 names repeating until correct).	...../ 3	...../ 3	...../ 3
ATTENTION AND CALCULATION Subtract 7 from 100, then repeat from result. Continue five times: 100, 93, 86, 79, 65. (Alternative: spell "WORLD" backwards: DLROW).	...../ 5	...../ 5	...../ 5
RECALL Ask for the names of the three objects learned earlier.	...../ 3	...../ 3	...../ 3
LANGUAGE Name two objects (e.g. pen, watch).	...../ 2	...../ 2	...../ 2
Repeat "No ifs, ands, or buts".	...../ 1	...../ 1	...../ 1
Give a three-stage command. Score 1 for each stage. (e.g. "Place index finger of right hand on your nose and then on your left ear").	...../ 3	...../ 3	...../ 3
Ask the patient to read and obey a written command on a piece of paper. The written instruction is: "Close your eyes".	...../ 1	...../ 1	...../ 1
Ask the patient to write a sentence. Score 1 if it is sensible and has a subject and a verb.	...../ 1	...../ 1	...../ 1
COPYING: Ask the patient to copy a pair of intersecting pentagons 	...../ 1	...../ 1	...../ 1
TOTAL:	...../ 30	...../ 30	...../ 30

MMSE scoring
24-30: no cognitive impairment
18-23: mild cognitive impairment
0-17: severe cognitive impairment

OME Oxford Medical Education

R.A.B

Evaluation of cognitive functions



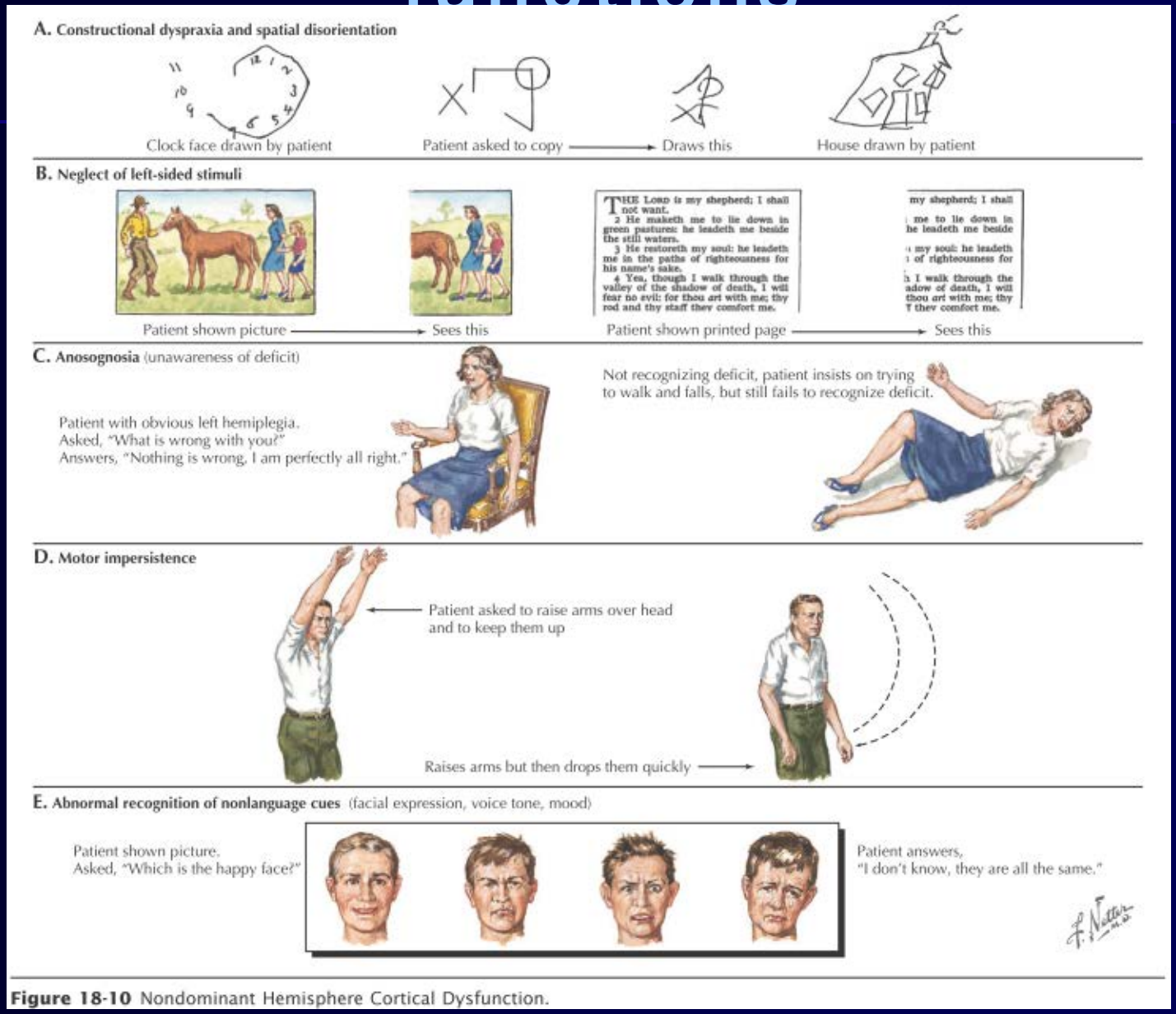
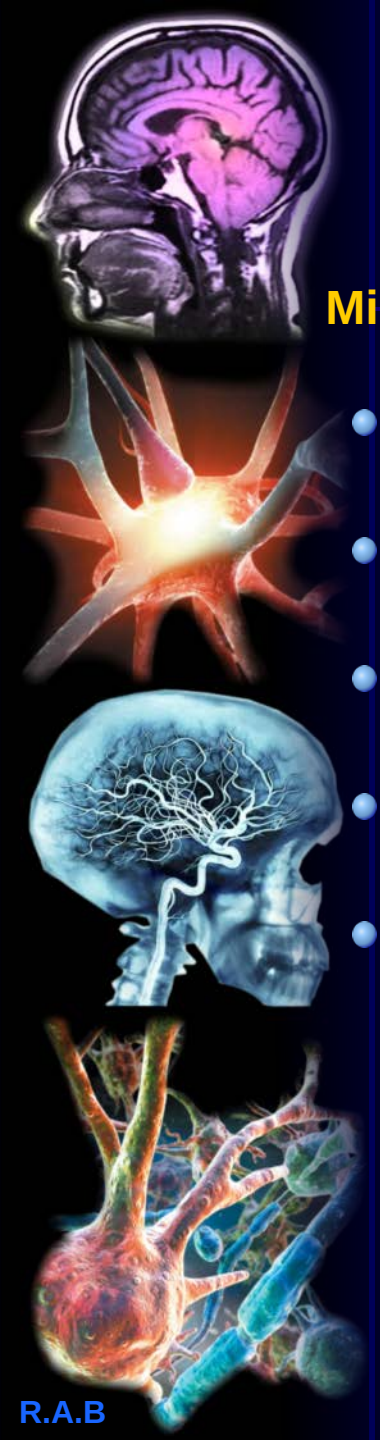


Figure 18-10 Nondominant Hemisphere Cortical Dysfunction.

R.A.B



Dementia - Evaluation

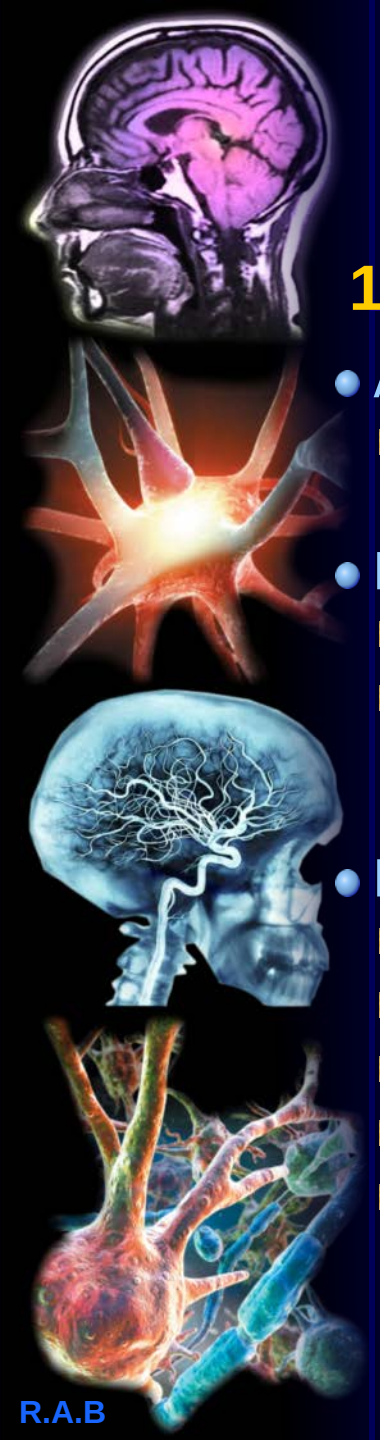
Mild Cognitive Impairment (MCI)

- Mainly subjective complains as to the memory or attentiveness
- Increased time to remember new information
- Slight objective deterioration; delayed reaction speed
- No objective findigs, no or minimal functional impairment,
- No abnormalities on PET, fNMRI scans nor EEG records

Dementia

- Objective decline in some aspects on mental capabilites mainly as compared to previous data (MMS) → secondary decline.
- Memory impairment - short-term memory in Alzheimer dementia
- Personality disorders, behaviour, motivation, persistence, interest
- Affective lability
- Speech disorders, finding words, epxressing
- Findings on PET and NMRI
- Often anosognosia ← People don't admit that they have a problem

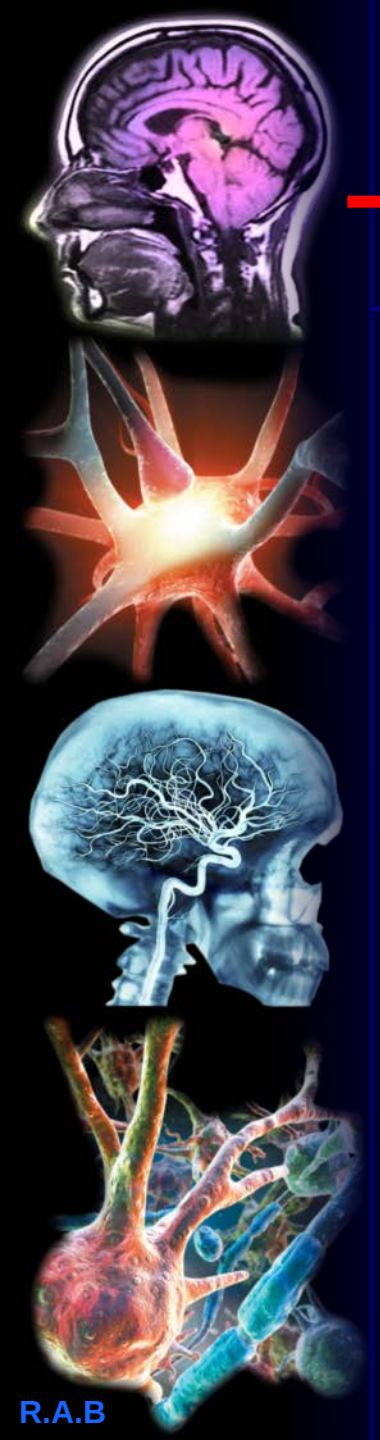
R.A.B



Dementia - Etiology

1. Neurodegenerative diseases

- Alzheimer's disease group
  - Alzheimer's disease
- Diseases with Lewy bodies
  - Dementia with Lewy bodies (DLB)
  - Dementia in Parkinson's disease (PDD)
- Fronto-temporal degeneration
  - Fronto-temporal dementia (FTD)
  - Primary progressive aphasia (PPA)
  - Semantic dementia (SD)
  - FTD with parkinsonism (FTDP-17)
  - Pick's disease (PiD)
- Other diseases
  - Progressive supranuclear palsy (PSP)
  - Corticobasal degeneration (CBD)
  - Multiple system atrophy (MSA)
  - Amyotrophic lateral sclerosis (ALS), Motoneuronal disease
  - Huntington's disease (HD)
  - Down syndrome



Dementia – Etiology

2. Infection

- Prionoses (group)
  - Sporadic
  - Variant CJCh (BSE)
  - Familial CJD
  - Gerstmann-Sträussler-Scheinker (GSS), Fatal familial insomnia (FFI)
- Encephalopathy in AIDS
- Neurosyphilis
- Postencephalic parkinsonism
- Viral encephalitis (Herpetic)

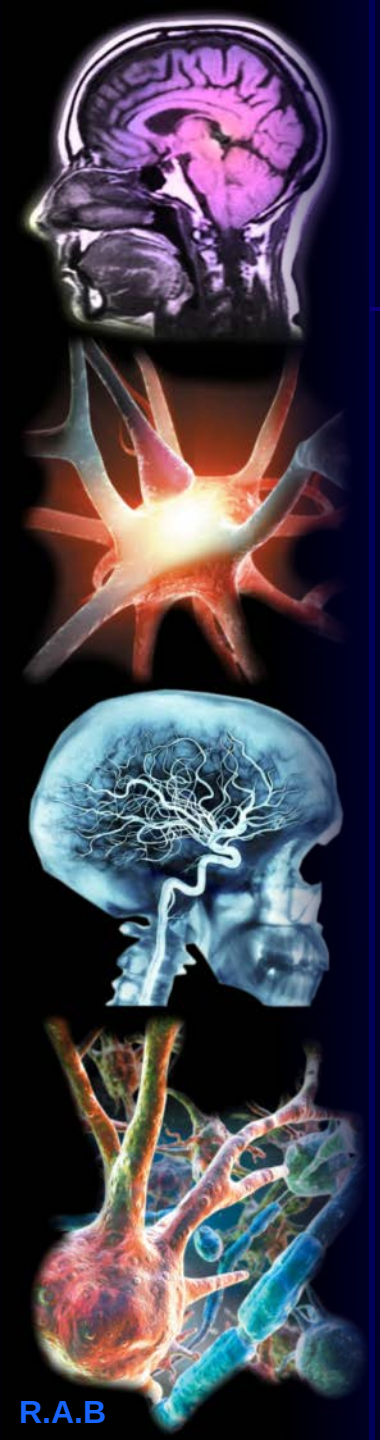
3. Metabolic disorders

- Diabetes mellitus type 2
- Hypothyroidism
- Hepatic failure
- Renal failure
- Hypovitaminosis (pellagra)

Hereditary metabolic diseases

- Hallervorden-Spatz (iron accumulation)
- Gangioidosis
- Cerebral lipoidosis
- Metachromatic leukodystrophy
- Adrenoleukodystrophy

R.A.B



Dementia - Etiology

4. Traumatic diseases

- Repetitive (micro)-brain trauma (falls concussions)
- "Push -drunk" (boxer) syndrome

5. Metabolic - toxic diseases

- Wernicke's - Korsakov's sy. - avitaminosis B (B1, B6, B12)
- Diabetic encephalopathy (DM type 2; Alzheimer's

6. Cerebro-vascular diseases

- Multiple microhemorrhages, microangiopathy
- Diffuse microinfarcts, lacunar infarcts (thromboembolisation)
- Binswanger's disease
- Amyloid angiopathy (diabetes)

7. Other rare causes of dementia

- Sclerosis multiplex
- Normotensive hydrocephalus, etc.

R.A.B

Treatable dementias

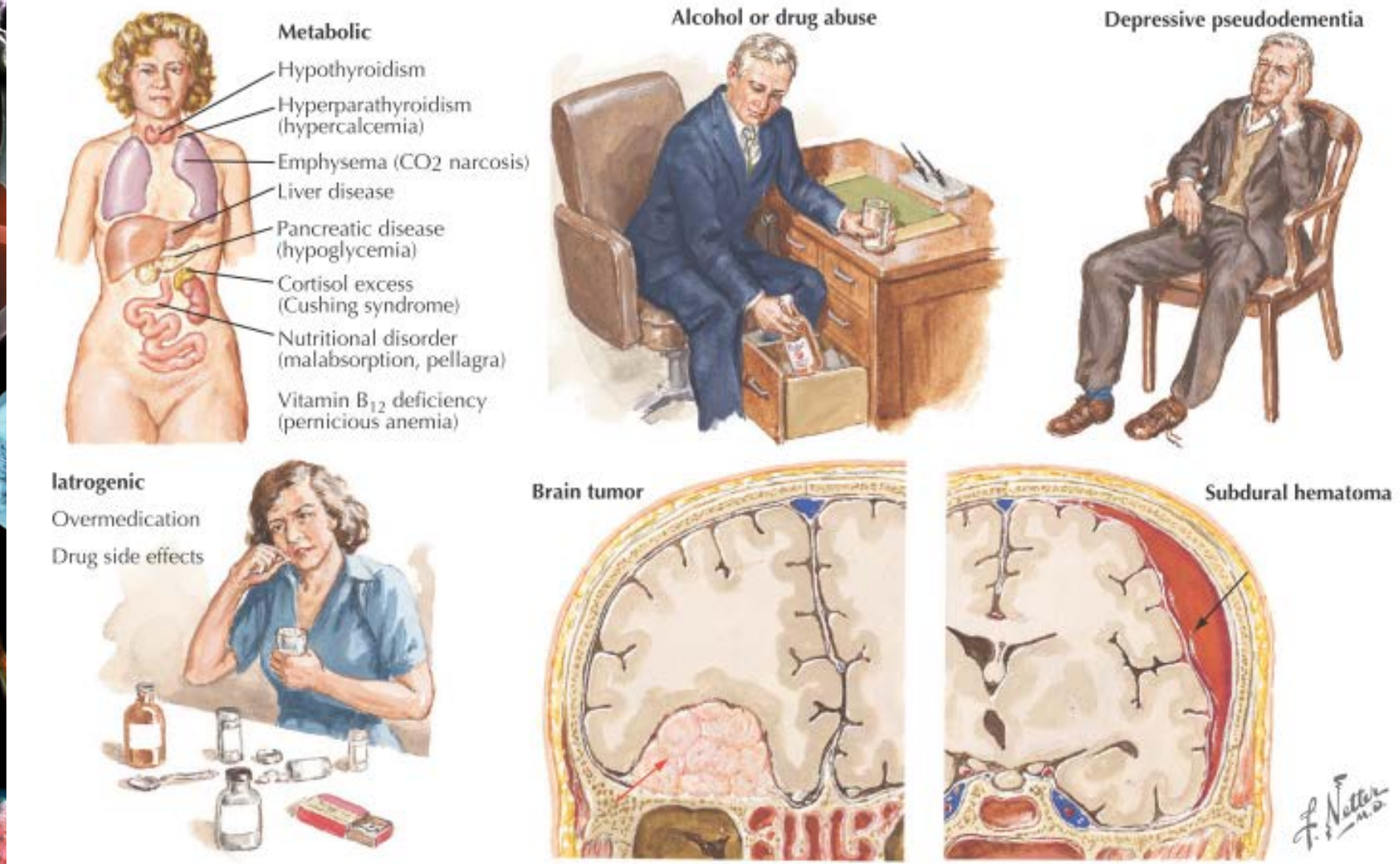
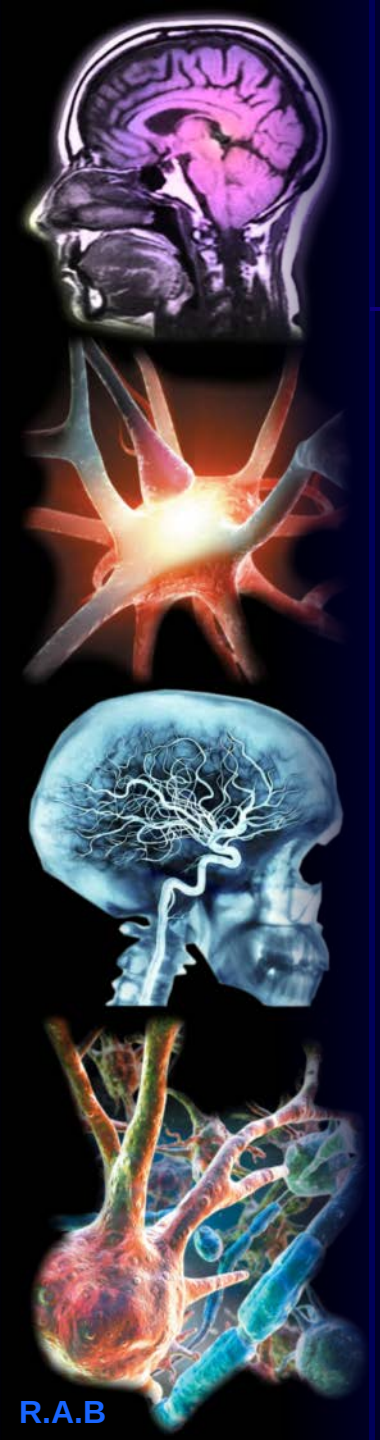
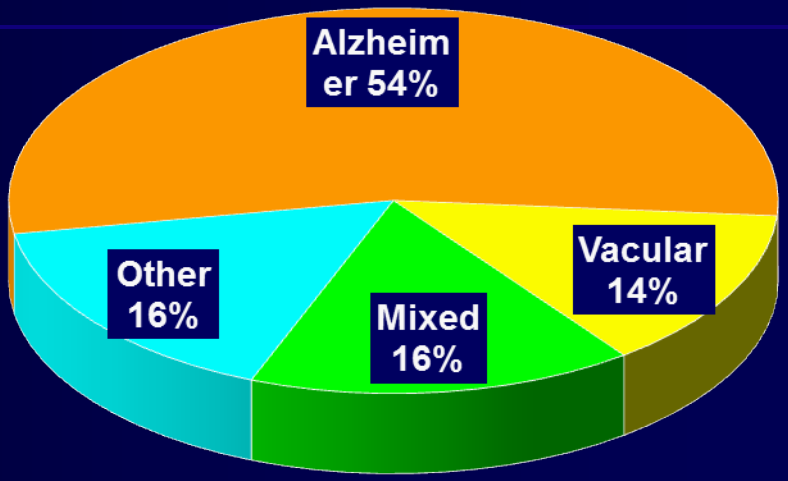


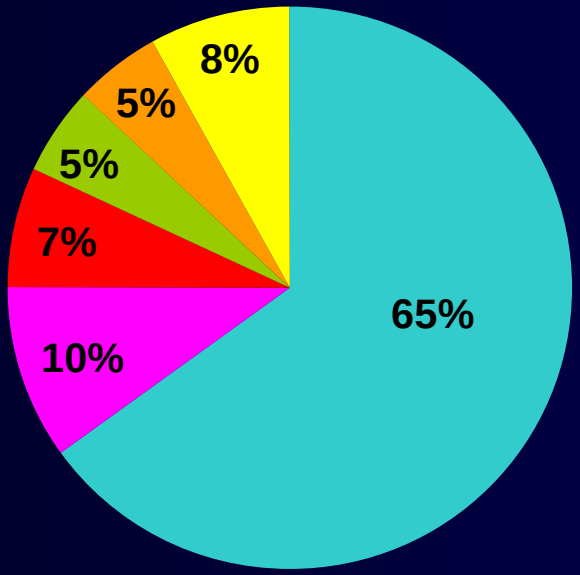
Figure 18-9 Treatable Dementias.



Demencie – Etiology

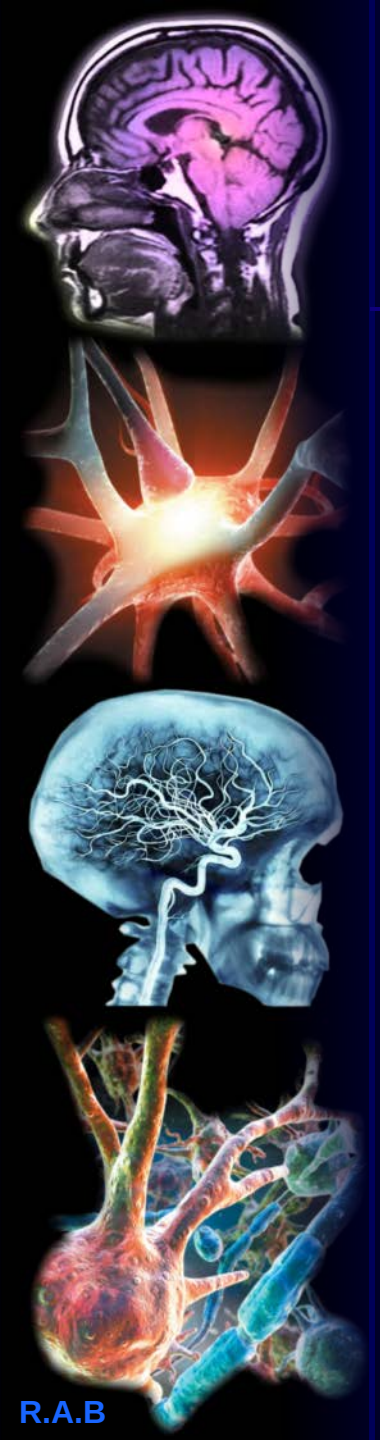
1. Alzheimer type
2. Vascular type
3. Mixed type
4. Other





- Alzheimerova chroba (AD): 65%
- ACh & Vaskulárne: 10%
- Levyho telieska: 7%
- AD and Lewy body: 5%
- Vaskulárne: 5%
- Iné: 8%

R.A.B



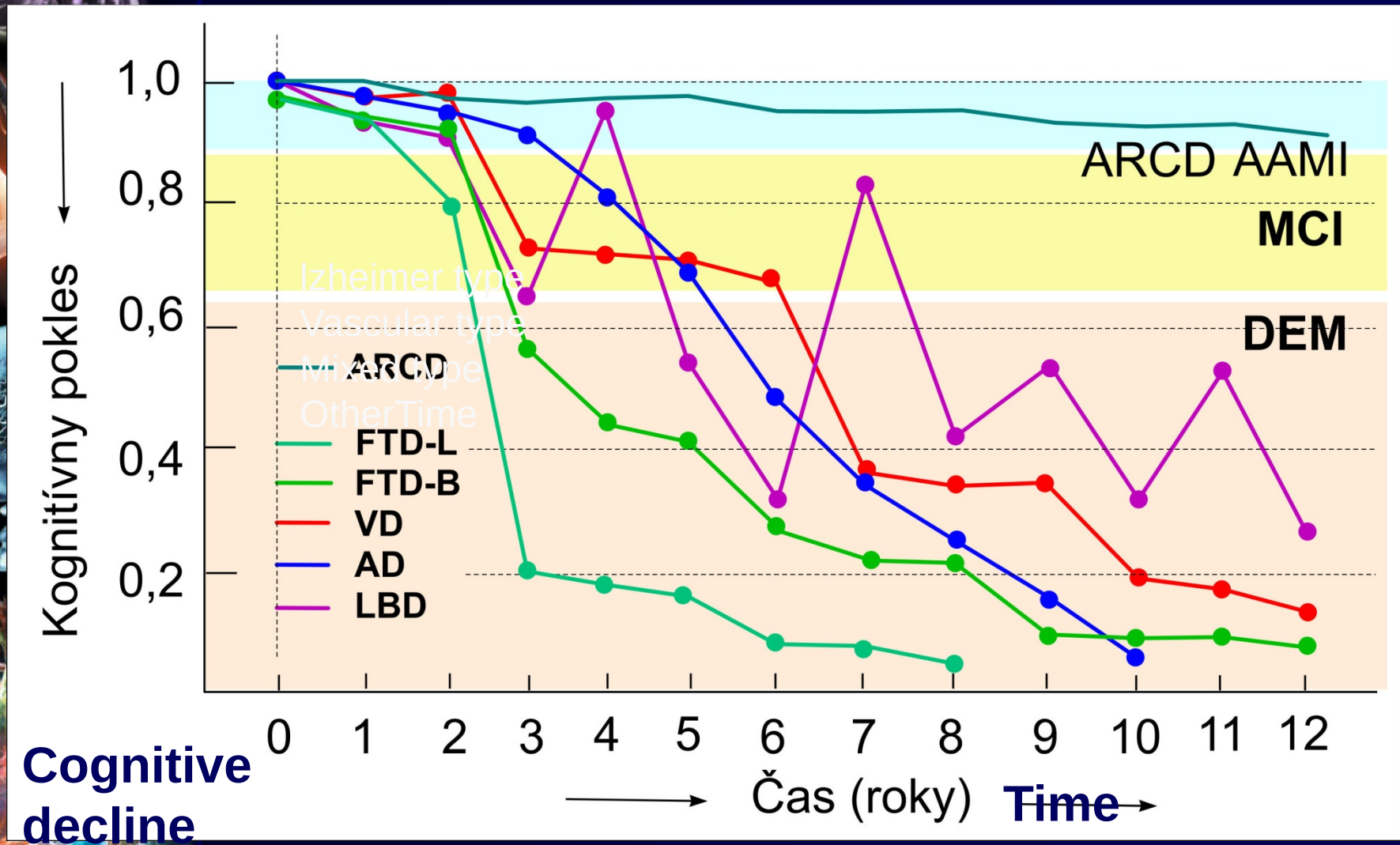
Dementia – Manifestations

Most common forms of dementia – major manifestations

- Vascular dementia
  - acute onset, episodic exacerbations, improvements
  - variable image - depends on the location
  - transient (postctal): aphasia, ataxia, apraxia, microbasic gait, extrapy. sy. unexpected emotional reactions (crying, laughing)
- Fronto-temporal dementia
  - Most progressive form – sometimes slow but steady progress,
  - begins with personality disorders, behavioral change, empathy
  - speech disorders-aphasia, paraphasia
  - motor disorders-akinesia, rigor; deliberalization novor. reflexes
- Alzheimer ' s dementia
  - slow, futile onset
  - variable image
  - begins with memory impairment – perceptiveness
  - Anomie, facial recognition, loved ones
  - normal daily activities
  - normal operating activities-motor disorders
- Lewy body dementia

R.A.B

Cognitive alterations in dementia



Alzheimer dementia

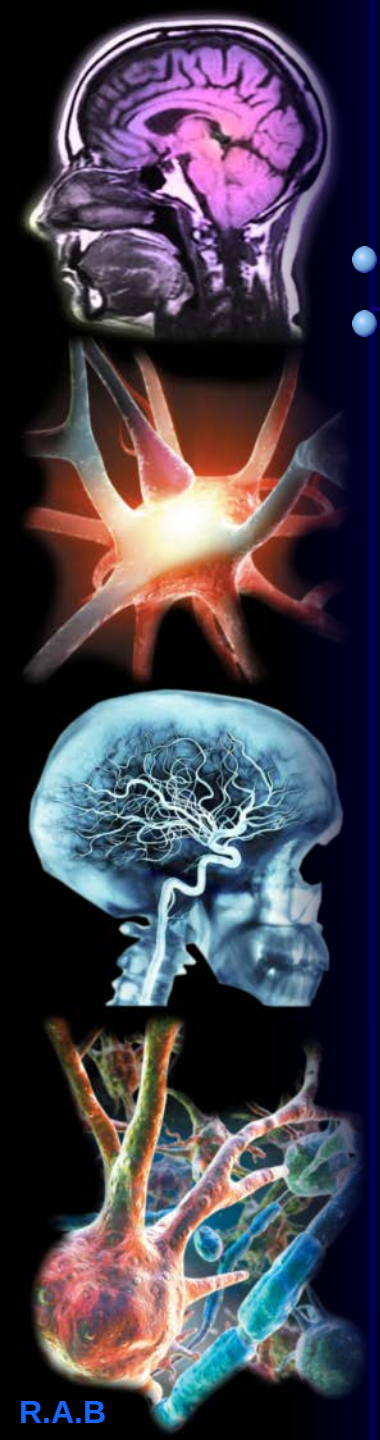
- Def.: Alzheimer dementia = gradual loss of cognitive functions with typical early onset memory problems (forgetfulness), naming things (anomia) , persons, activities, later bevioural & presonality alterations
- Occ: No.1 among senile dementia,(> 70 y.|` presenile dementia;

- Etio: a) Hereditary factors (familiar AD, FAD) : a) Ch21 (APP) : Early Onset FAD → amyloid precursor protein--> amyloid beta; b) Ch 1 (PS2) presenilin 2 (? g-secretase activity); c) Ch14 (PS1): presenilin1 Early Onset FAD;

Ch19: Apo-E4 late onset risk factor (apolipoprotein E4+)

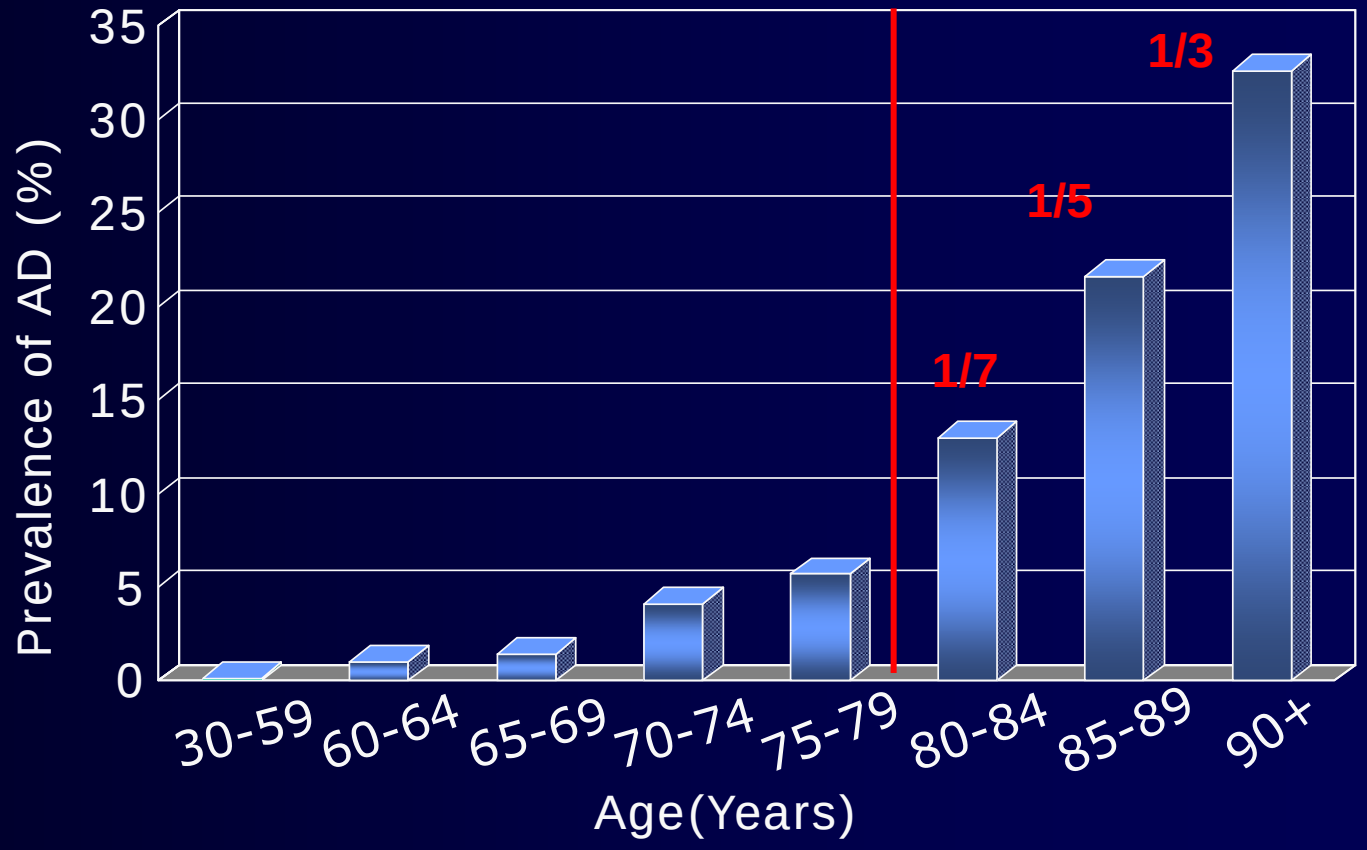
- Transmitters:
- (1) Ach Acetylcholine - NBM (Nucleus hasalis ol Meynert) - early Ach decrease in the brain and spinal
- fluid of patients with AD early and quickly decline with disease progression. This observation supported the cholinergic hypothesis --> Ach depletion --> cognitive decline
- (2) NE Norepinephrine - LC Locus ceruleus / later in disease (brainstem)
- (3) 5-HT Serotonin - RN Raphe nuclei / later in disease (brainstem)

R.A.B



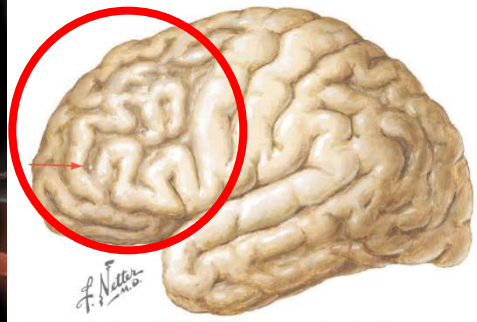
Prevalence of AD

- Most common cause of dementia among people > 65y
- Typical late onset - 65+ yrs (< 10% earlier – mostly hereditary)

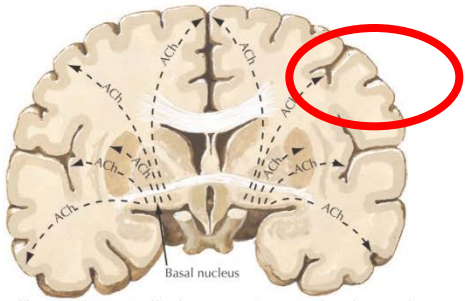


R.A.B

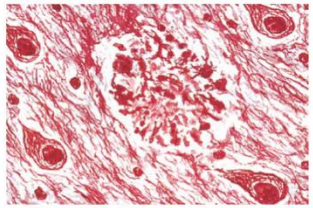
Alzheimer's dementia



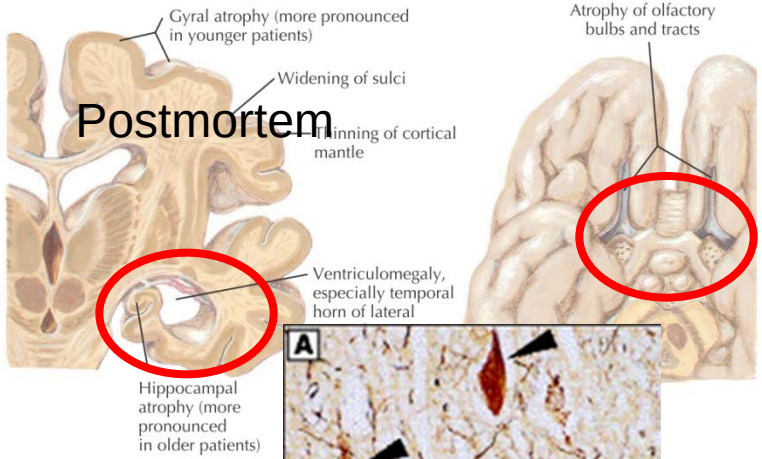
Regional atrophy of brain with narrowed gyri and widened sulci (arrow), but precentral and postcentral, inferior frontal, angular, supramarginal, and some occipital gyri fairly well preserved. Association cortex mostly involved.



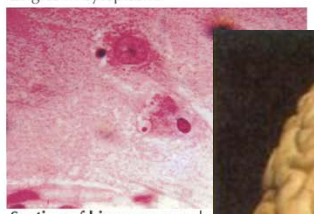
Section of brain schematically demonstrating postulated normal transport of acetylcholine (ACh) from basal nucleus of Meynert (substantia innominata) to cortical gray matter



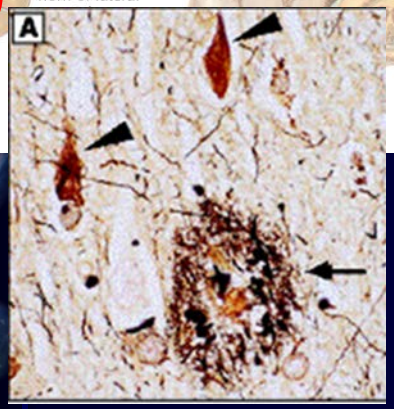
Senile plaque (center) made up of argyrophil fibers around core of pink-staining amyloid (Bodian preparation). Neurons decreased in number, with characteristic tangles in cytoplasm.



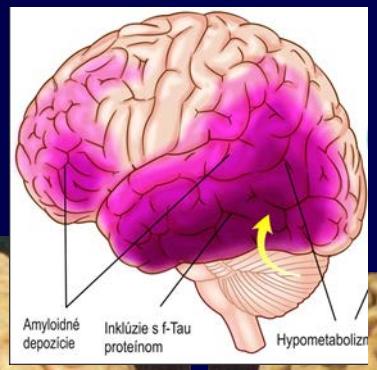
Postmortem

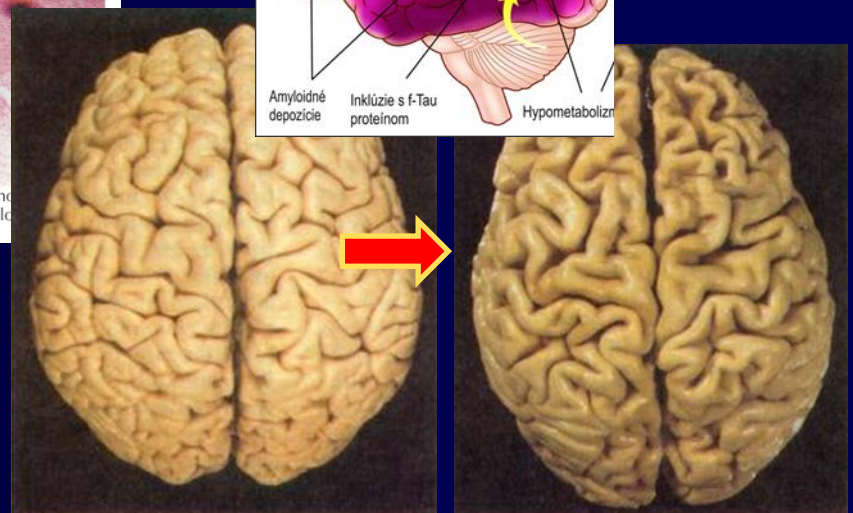


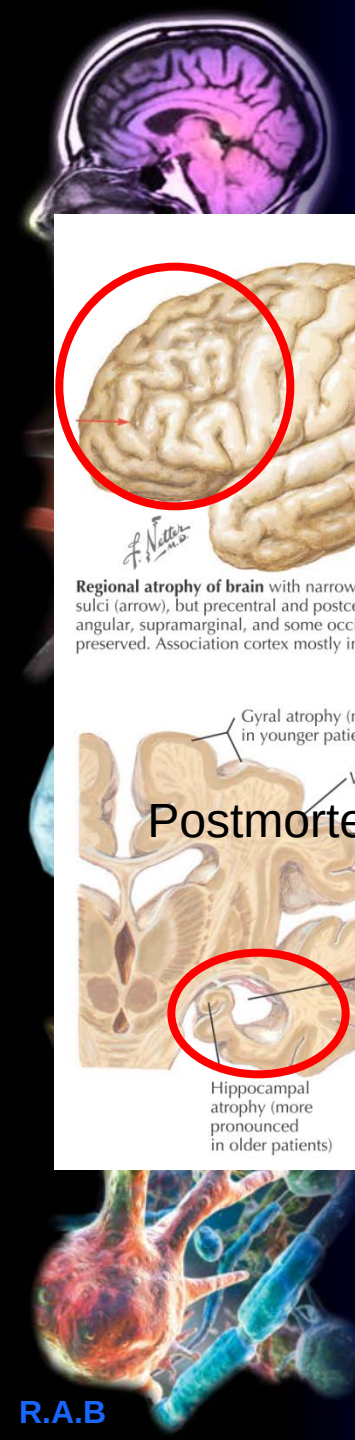
Section of hippocampus sh
lovacuolar inclusions and l
pyramidal cells



- Pa: Macroscopic: starts in enthorinal cortex + hippocampus; inferior temporal lobe, dysfunction of acetylchoilne neurons (basal forebrai) ; Frontal cortex
- Microscopic (*intracel.* – neurofibrillary tangles; *extracel.* – amylois plaques) Ultramicroskopic (agregated – amyloid fibrillas + hyperfosforylated tau (hpTau); beta amyloid (Aβ42), α-synuclein

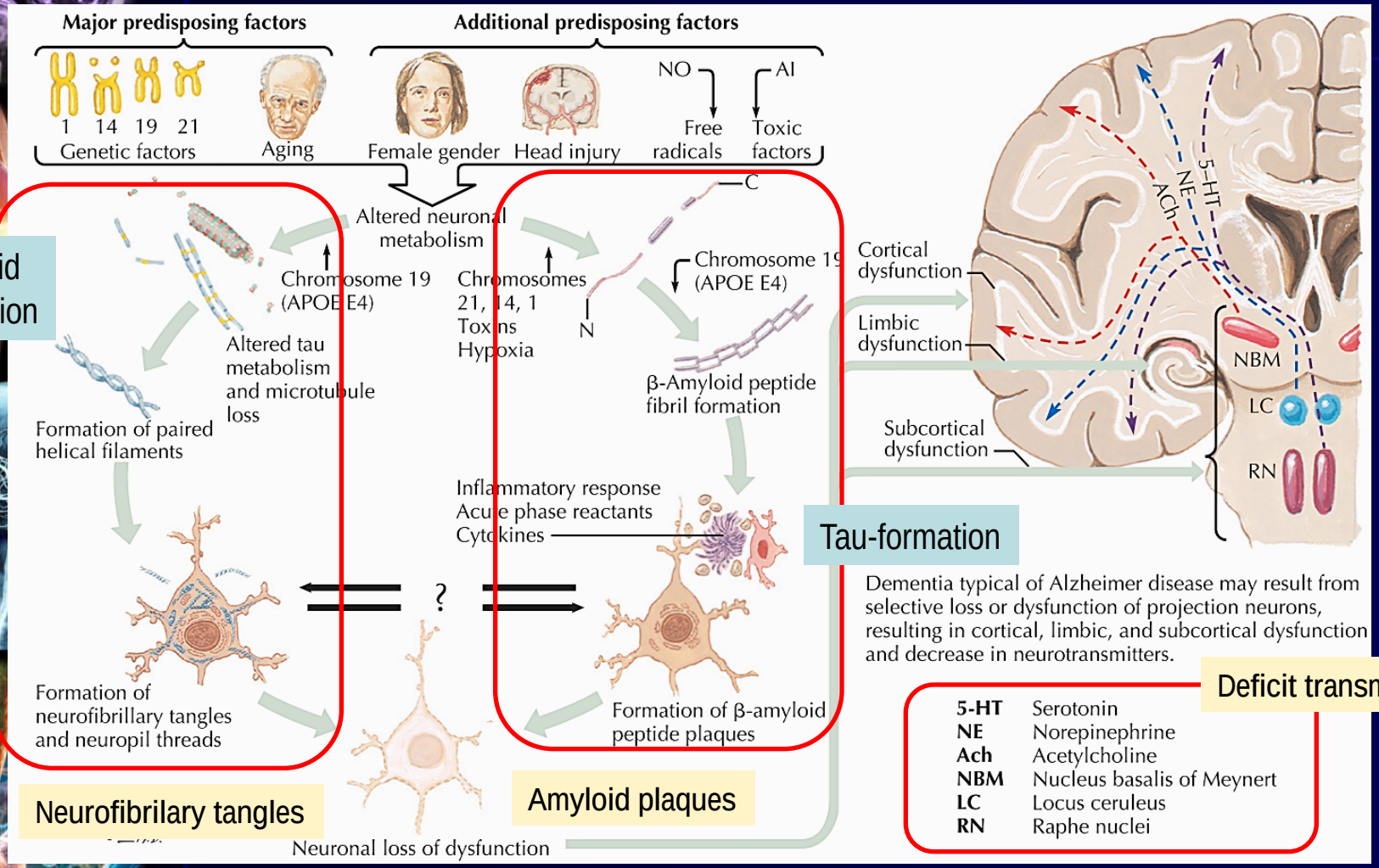






R.A.B

Alzheimer dementia - Etiology



Amyloid formation

Neurofibrilary tangles

Amyloid plaques

Tau-formation

Deficit transmision

Co

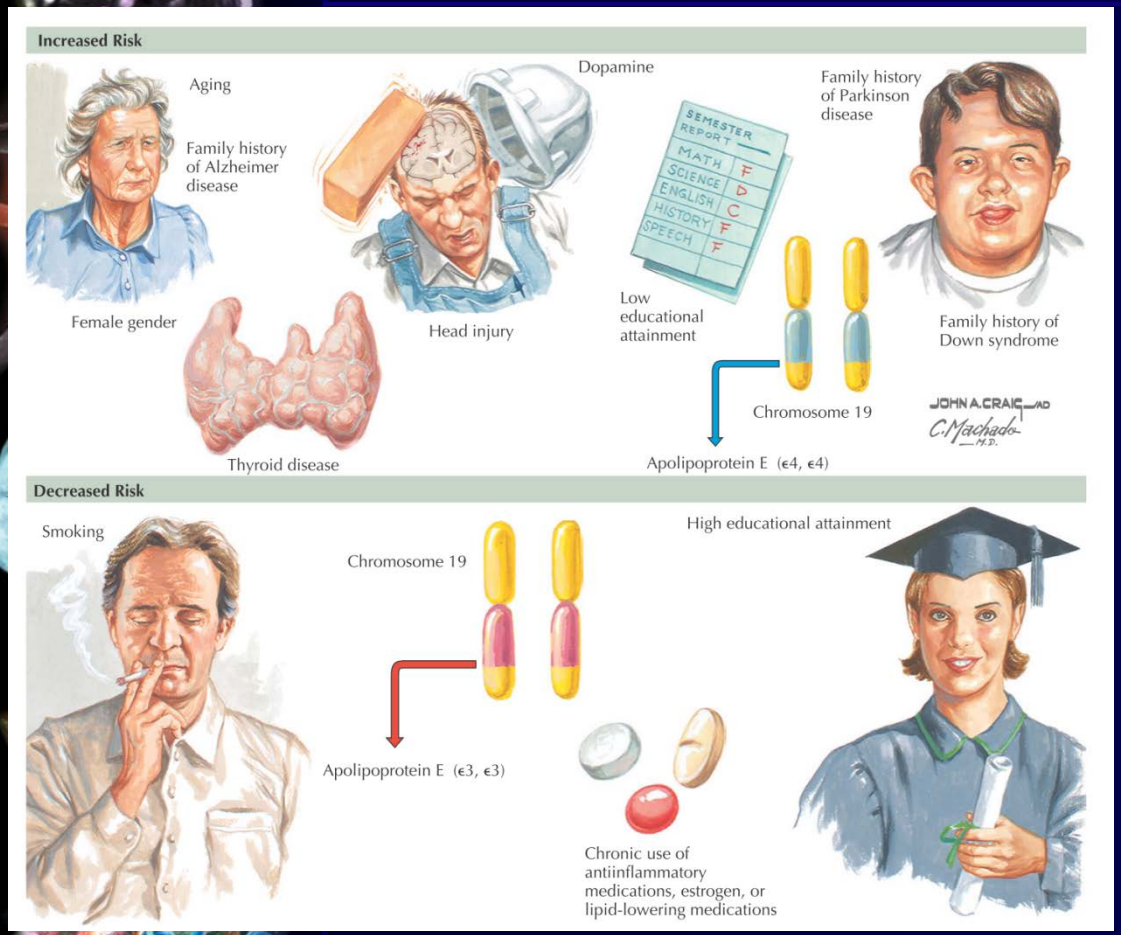
LS

SCo

Srinivasan, J. et al.: Netter's Neurology, 3rd Ed., 768 s., 2017, eBook ISBN: 9780323554794

R.A.B

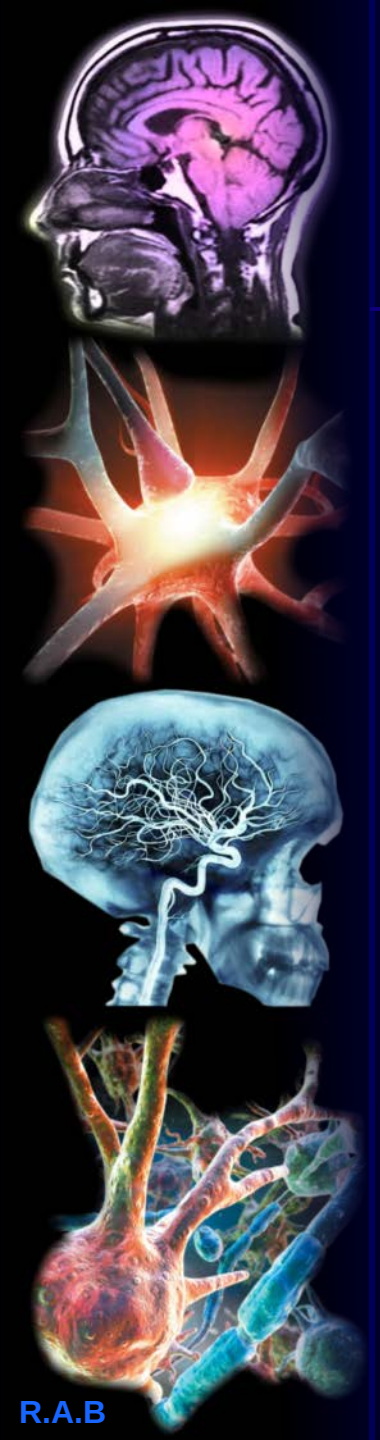
Risk factors of Alzheimer's disease



10 early warning signs

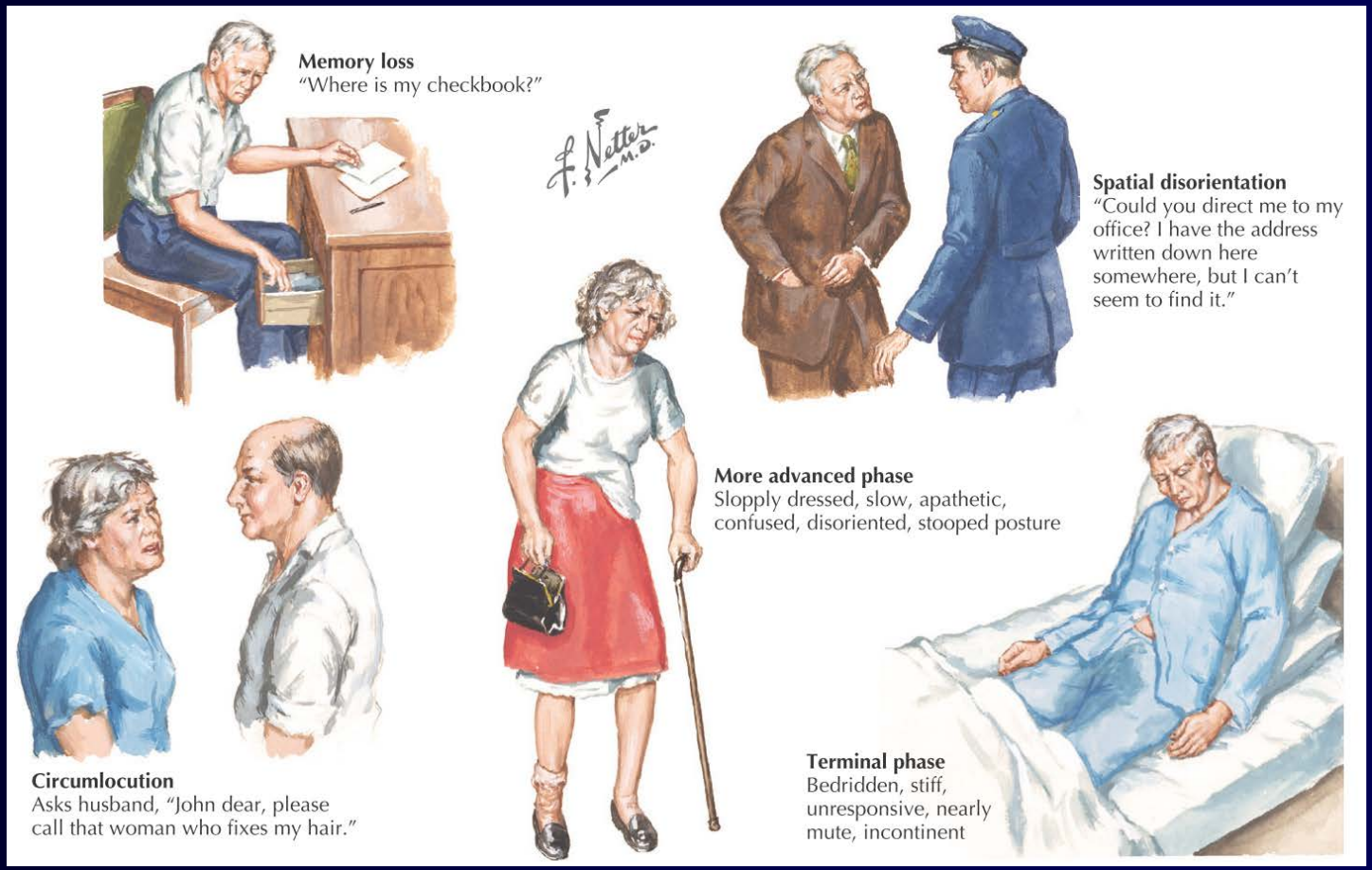
- Memory Loss That Affects Job Skills
- Difficulty Performing Familiar Tasks
- Problems with Language
- Disorientation of Time and Place
- Poor or Impaired Judgment
- Problems with Abstract Thinking
- Misplacing Things
- Changes in Mood or Behavior
- Changes in Personality
- Loss of Initiative

R.A.B



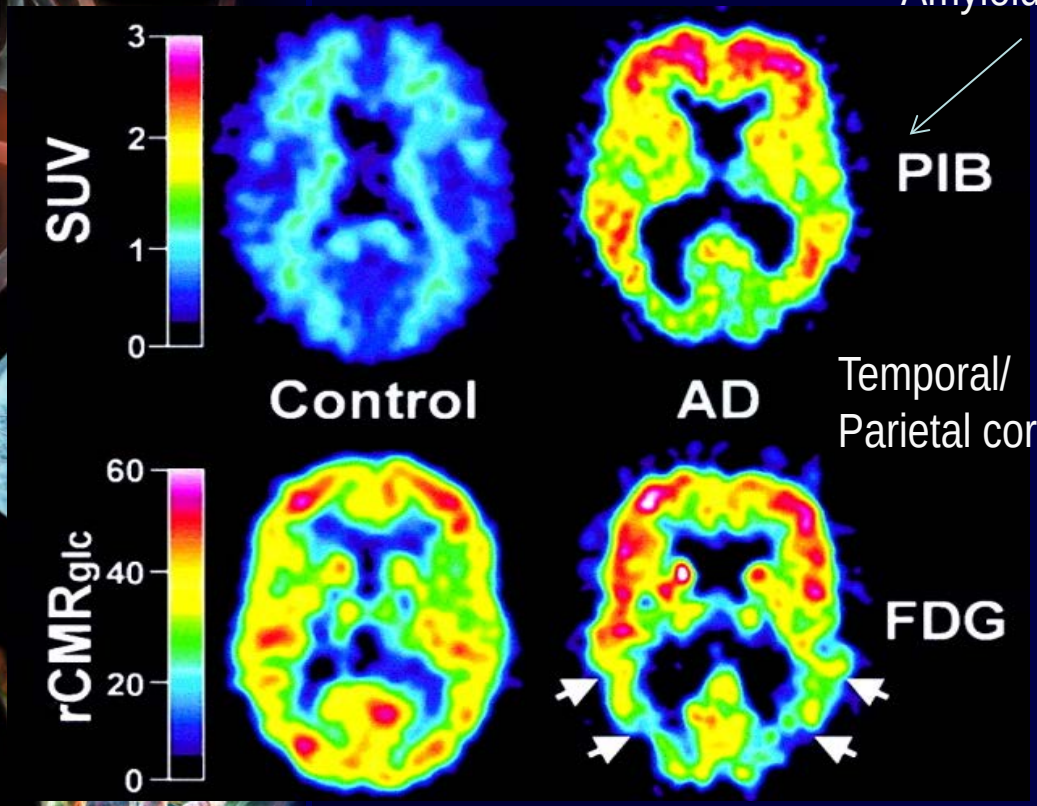
AD - clinical manifestations

- Early lost of recent memory (forgetfulness)
- Spatial disorientation (inability to find way home e.g. on vacations, new city)
- Instead of names of persons and their professions, descripton is used
- Behavioural changes – loss of interest, confusion, disorientation

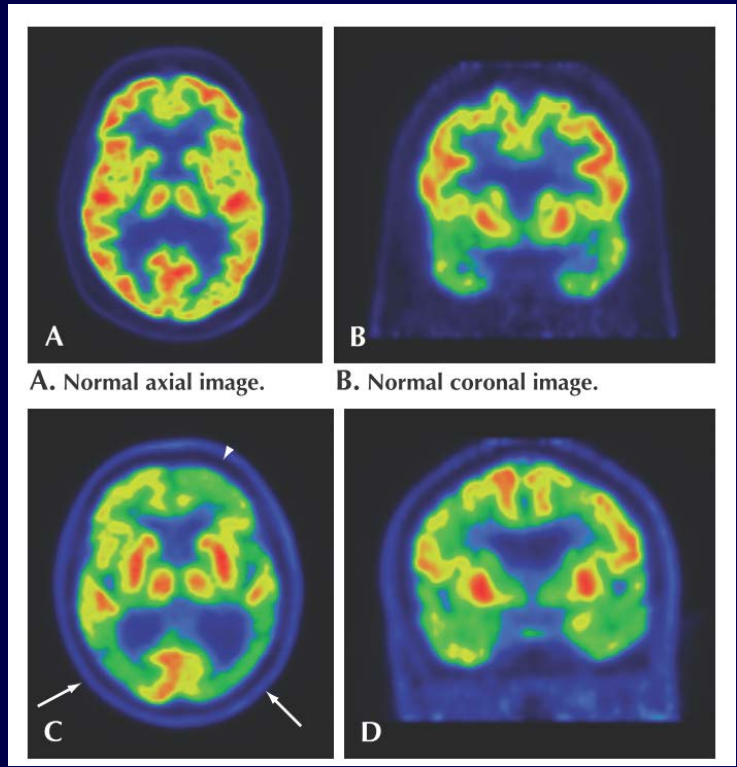


R.A.B

PET Imaging of Amyloid Deposits in AD vs Normal Controls



FDG-PET



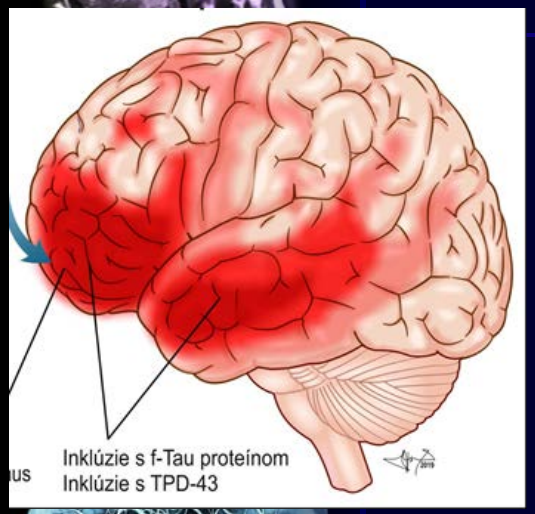
Tau pathology - TauPET, tTau, pTau (CSM)
Aβ pathology - Aβ PET, Aβ42/Ab40 (CSM)
Neurodegeneration- NMRi, FDG PET; neurogranín, SNAP-25 (CSM)

Decreased metabolicm in frontal and Temporo-parietal cortex

Source: Klunk, et al. *Ann Neurol* 2004: 55:306-319.

R.A.B

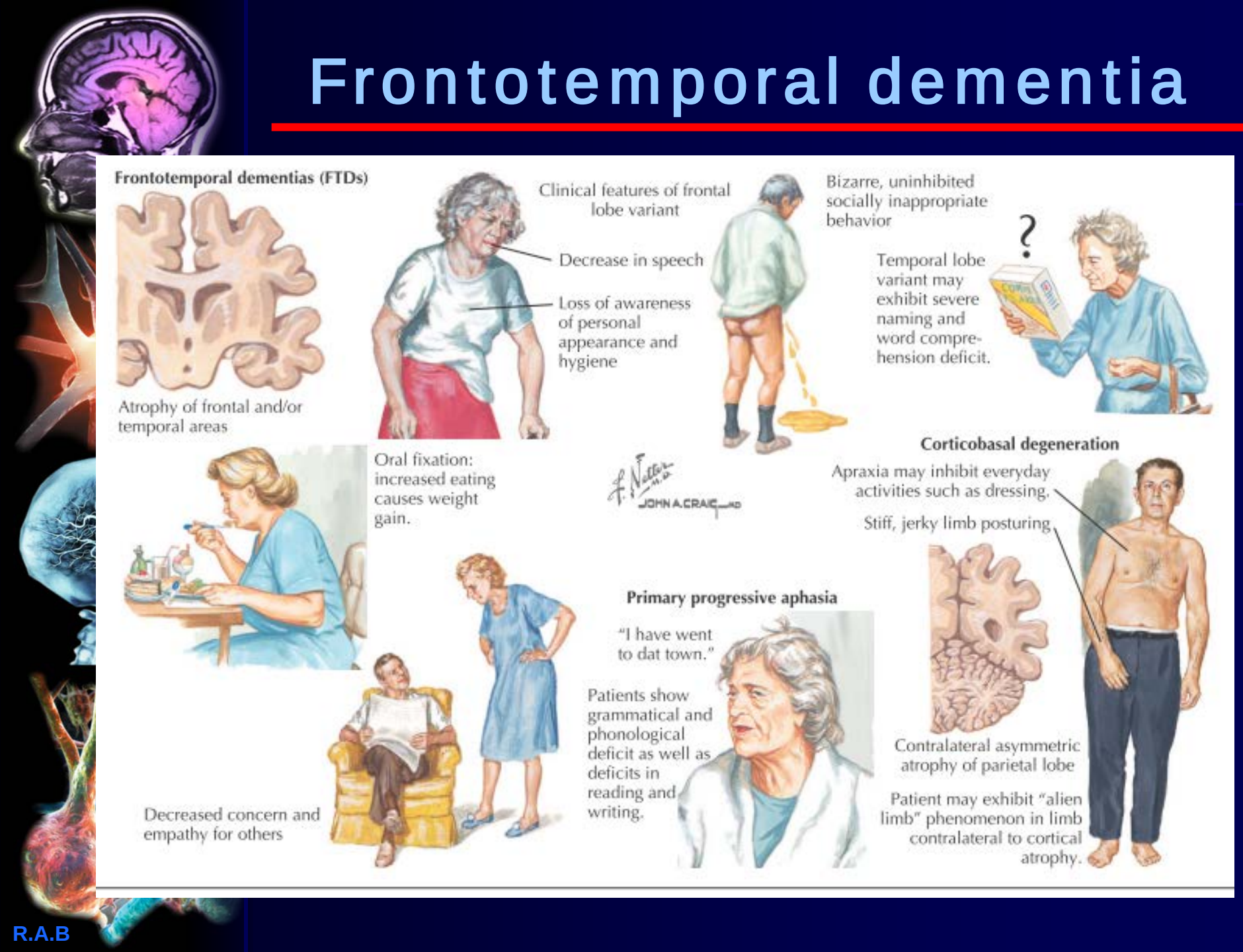
Frontotemporal dementia



- Def.:. Frontotemporal dementia (FTD) - heterog. A group of disorders with primary degeneration of the anterior temporal and frontal lobes, (often including parietal cortex and BG) changes in cognition, language, personality, and social functioning.
- Epi.: FTD is the third most common form of dementia (10%)
- Path: Aggregates of proteins → neurofibrilary tangles, inclusions
- (1) tauopathy (hyperphosphorylated τ-protein; (Ch17)) - Pick's disease (spherical inclusions in balloon-constricted neurons l. front). Ubiquitin) deposits (inclusions) → apoptosis serotoninergic neurotransmission deficiency
- (2) tau-negative forms (ubiquitin, prot. TDP-43) inclusions → gliosis, aseptic inflammation
- Forms
- a) Frontotemporal dementia - frontal/behavioral variant,
- b) Speech" dementia; primary progressive aphasia (PPA),

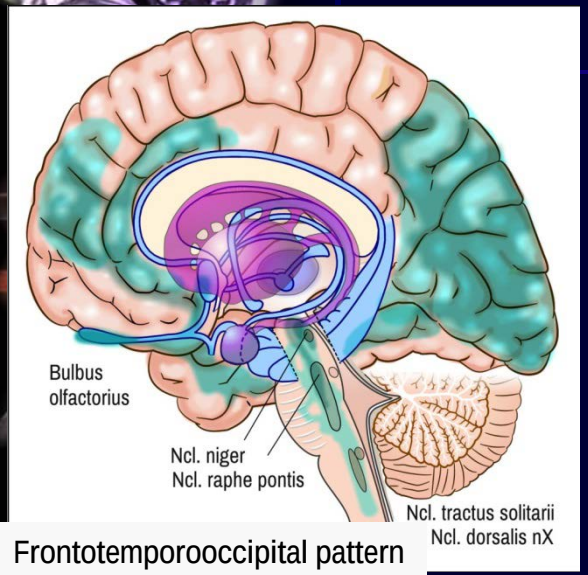
R.A.B

Frontotemporal dementia

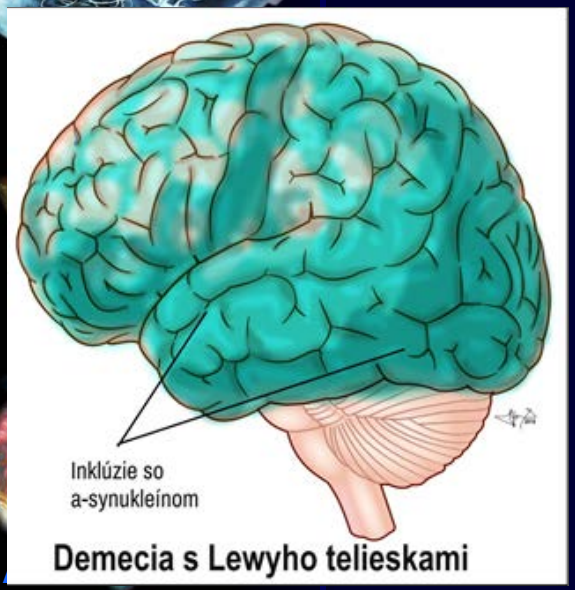


R.A.B

Dementia with Lewy bodies



Frontotemporooccipital pattern

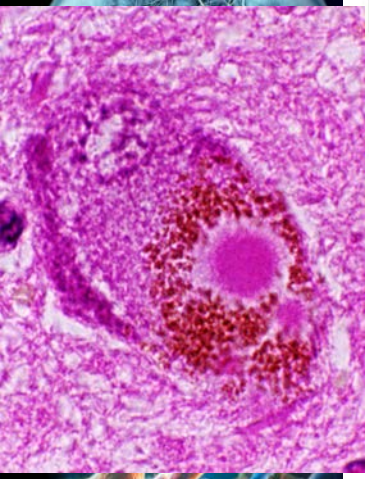


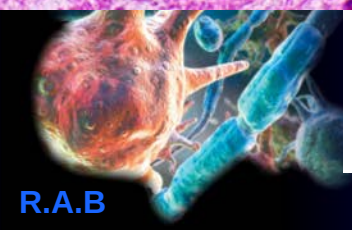
- Def.: slowly progressive type of cortical dementia with extrapyramidal symptoms; from the onset of the first symptoms to death 7-8 years); diag. as atypical Alzheimer's disease ; variant of Parkinson's disease; definitive diagnosis post mortem
- His:, Lewy body cortical disease, Lewy type senile dementia, Lewy body Alzheimer's variant
- Epi: muži > 75 rokov ; 15-20% prípadov všetkých demencií, 3. miesto ; veľmi málo diagnostikovaná. Najčastejšie končí smrťou z pridruženej choroby) men > 75 years ; 15-20% of cases of all dementias, 3. location; very little diagnosed. Most often ends in death from an associated disease)
- Pat: Friedrich Heinrich Lewy-intraneuronal inclusions in the brain of parkinsonists; generalized atrophy of the brain
- Neurochemistry: depletion of acetylcholine transmission in the neocortex ; retrograde degeneration of cholinergic neurons in the brain stem and basal regions of the hemispheres (nucleus basalis Meynerti).

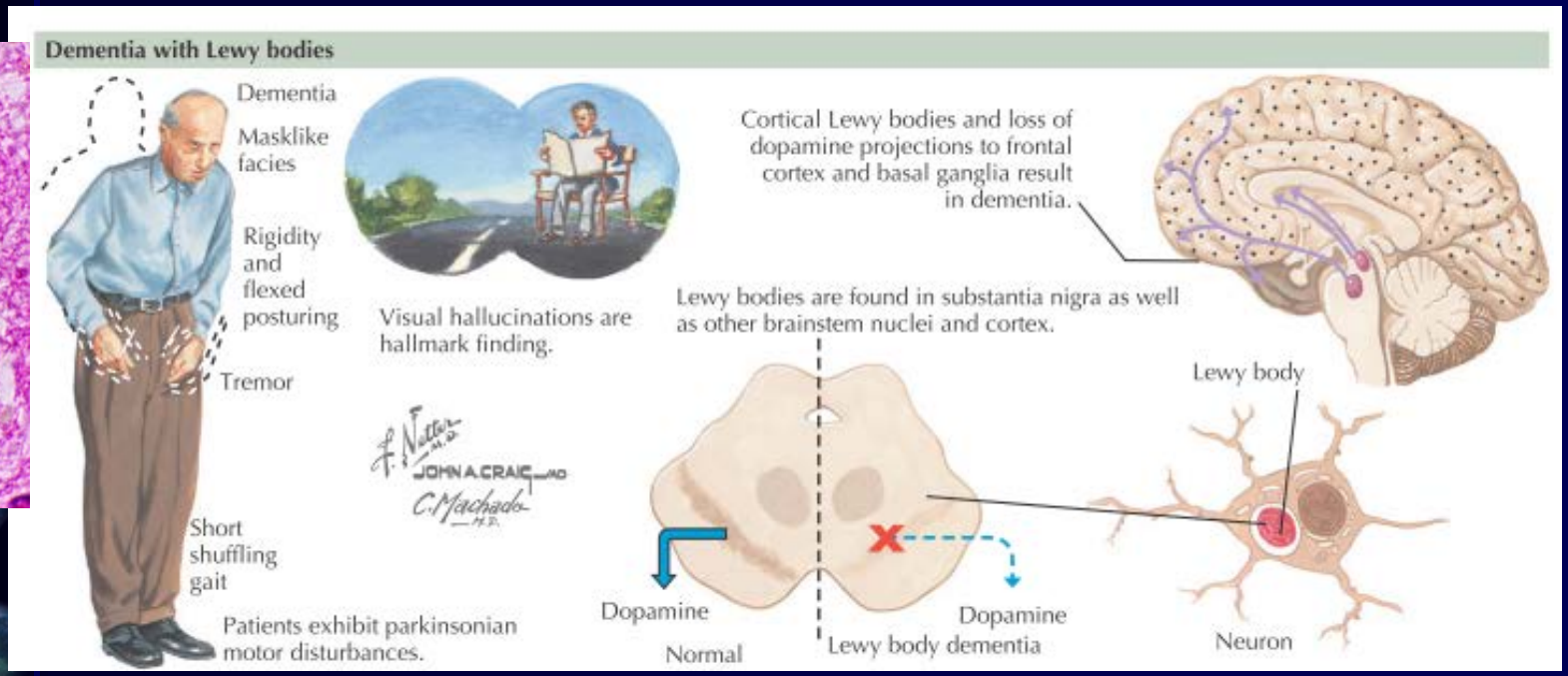
R.

Dementia with Lewy bodies

- Sy: Cognitive sy.: progress. dementia of type Ach (problems with short-term memory, anomie)+ disorders of visuospatial functions, disorders of judgment, logic + anosognosia (patients do not consider this a disease) +behavioral disorders.
  - Extrapyramidal sy. symptoms : Parkinsonian typemuscle rigidity, "shuffling" gait, propensity to fall, difficulty starting movement
  - Disorders of consciousness: fluctuating level of cognition and high sensitivity to neuroleptics.
  - Hallucinations: visual hallucinations of human figures and animals,

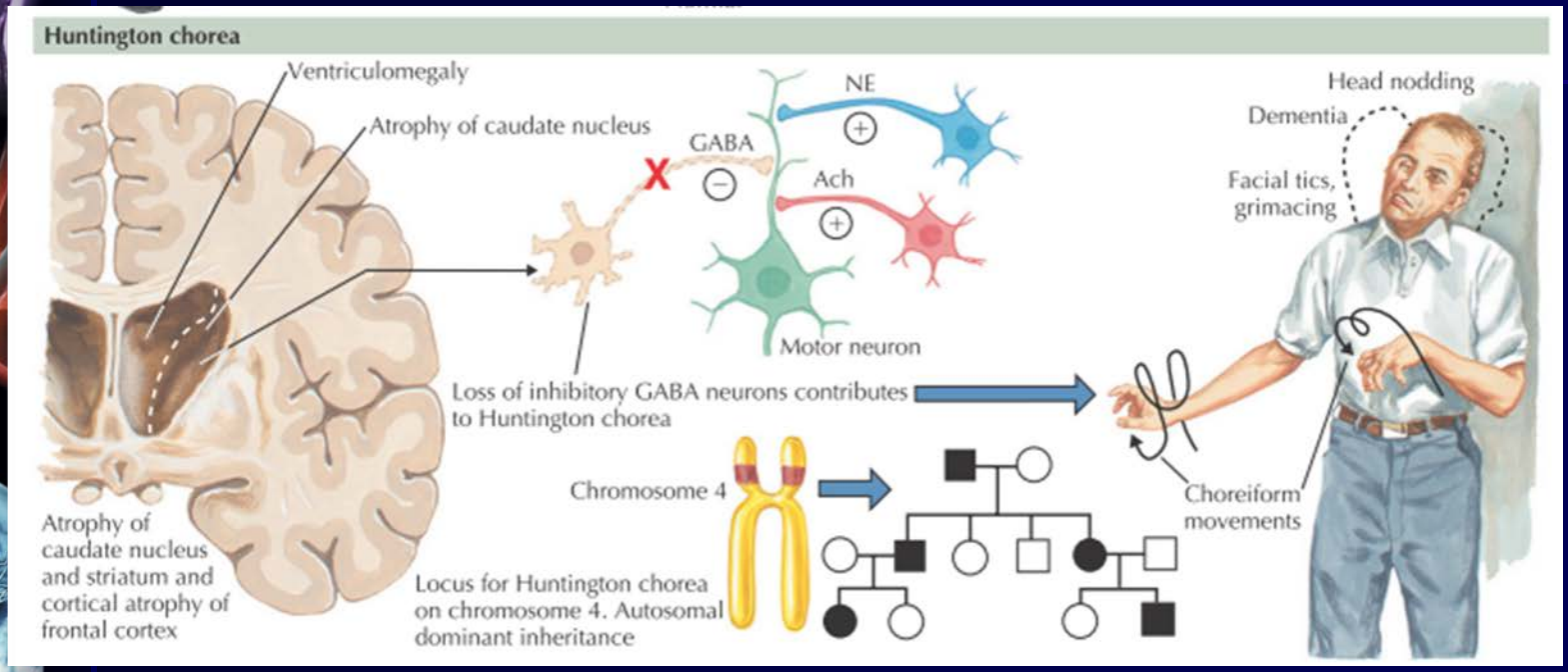






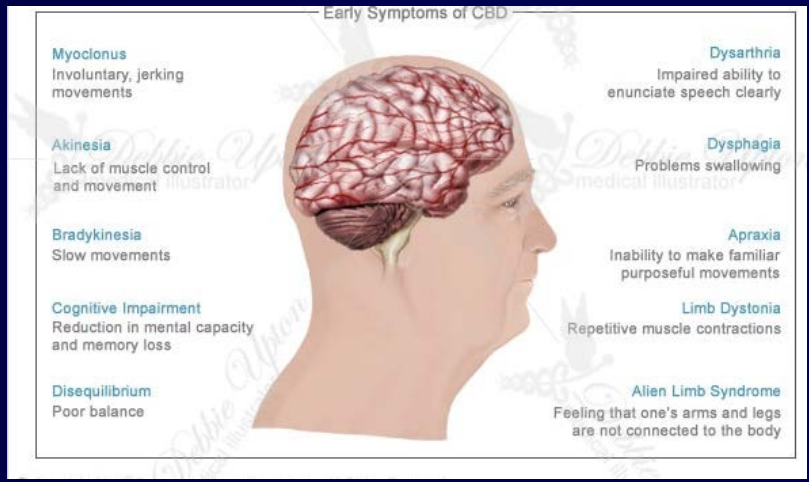
R.A.B

Dementias with motor involvemment

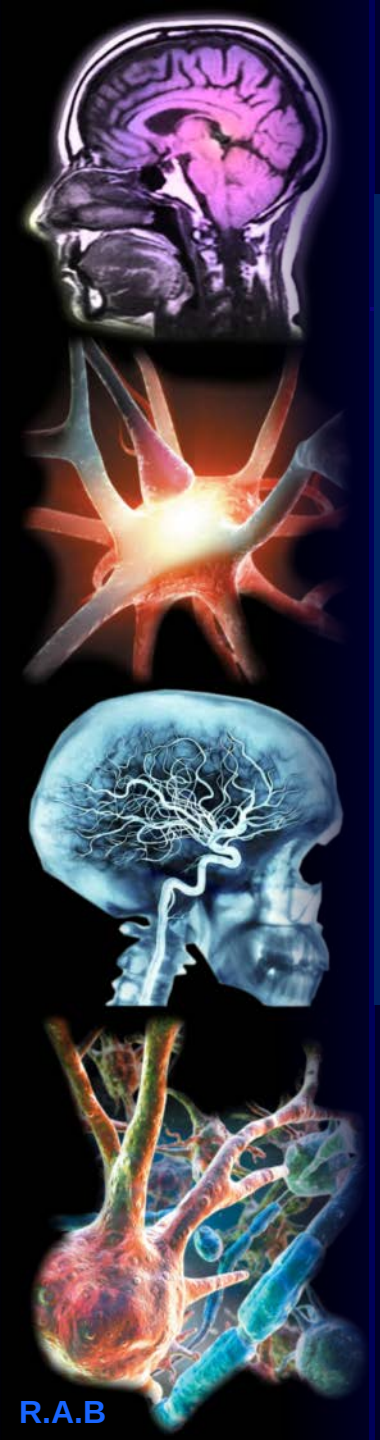


Corticobasal degeneration

Cognitive deficit (menory, thinking)
Dysphagia, Dysarthria,
Bradykinesia, Apraxia, Akinesia, Limb dystonia, Alien limb syndrome,
Myoclonus
Poor balance



R.A.B



Vascular dementia

Def: Vascular dementia is a decline in cognitive skills caused by reduced blood flow to the brain, which damages brain tissue; different from senile dementia

Occ: in Europe second most common cause of dementia after Alzheimer dementia; according to Americans overdiagnosed (less than 10%)

Causes: include stroke, small vessel disease, or chronic hypertension

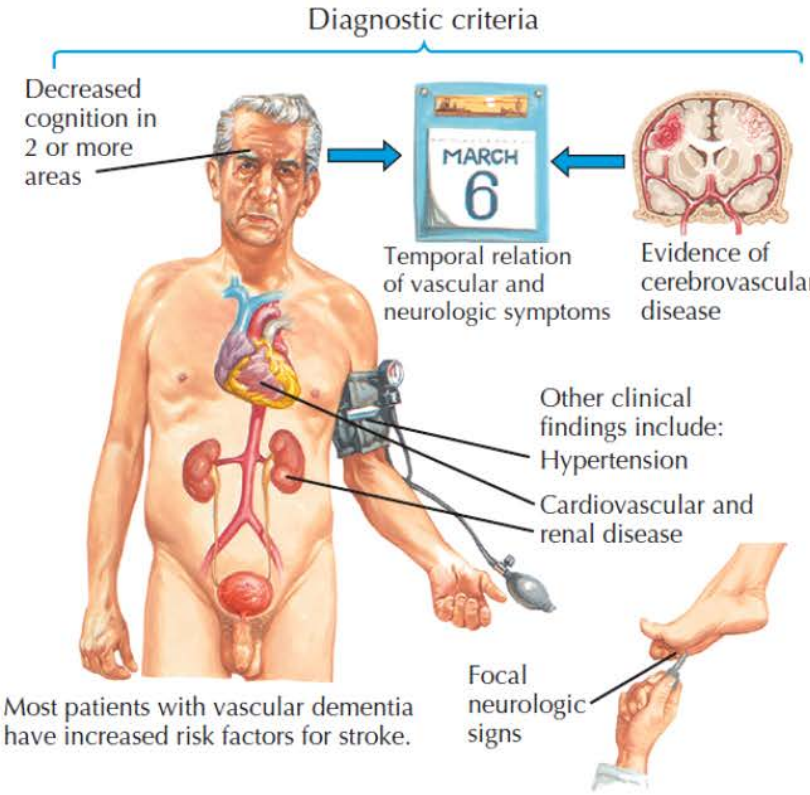
Symptoms: depend on the location and severity of the brain damages

- Cognitive: Difficulty with planning, reasoning, organizing, and solving
- Mental Speed: Marked slowness of thought.
- Attention: Difficulty concentrating and periods of sudden confusion.
- Memory/Language: Trouble with memory, following instructions, and finding words (often less severe than Alzheimer's in early stages). mood changes
- Behavioral: Personality changes, depression, or emotional instability.
- Physical: Difficulty walking, loss of balance, or urinary incontinence

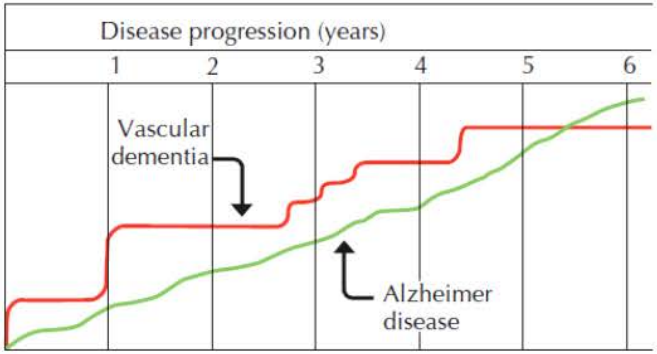
- mixed Azheimer dementia + vascular dementia
- (Biswanger disease) subcortical leukoencephalopathy due to white matter infarction after traumas (boxers) dementia, apathy, agitation, bilateral cticospinal/corticobulbar signs

R.A.B

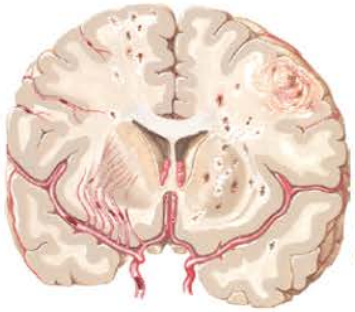
Vascular dementia



Most patients with vascular dementia have increased risk factors for stroke.

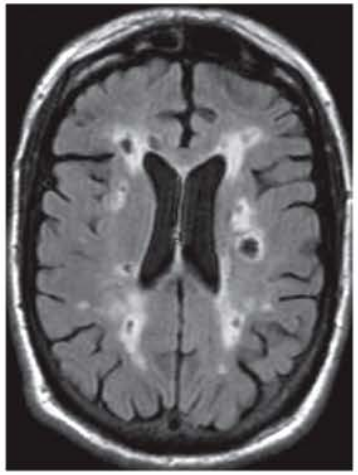


Clinical progression. Vascular dementia exhibits abrupt onset and stepwise progression in contrast to gradual onset and progression of Alzheimer disease.

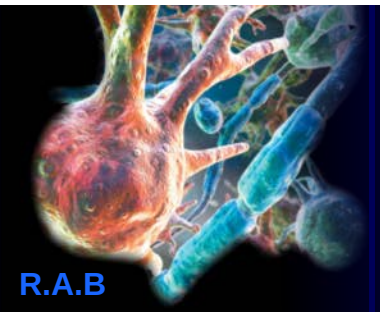


JOHN A. CRAIG, MD
C. Machado, M.D.

Cerebrovascular disease results in multiple small cortical and subcortical infarcts.



Axial FLAIR image demonstrates moderately severe confluent white matter, T2 hyperintensities, some regions with black holes consistent with cystic change.

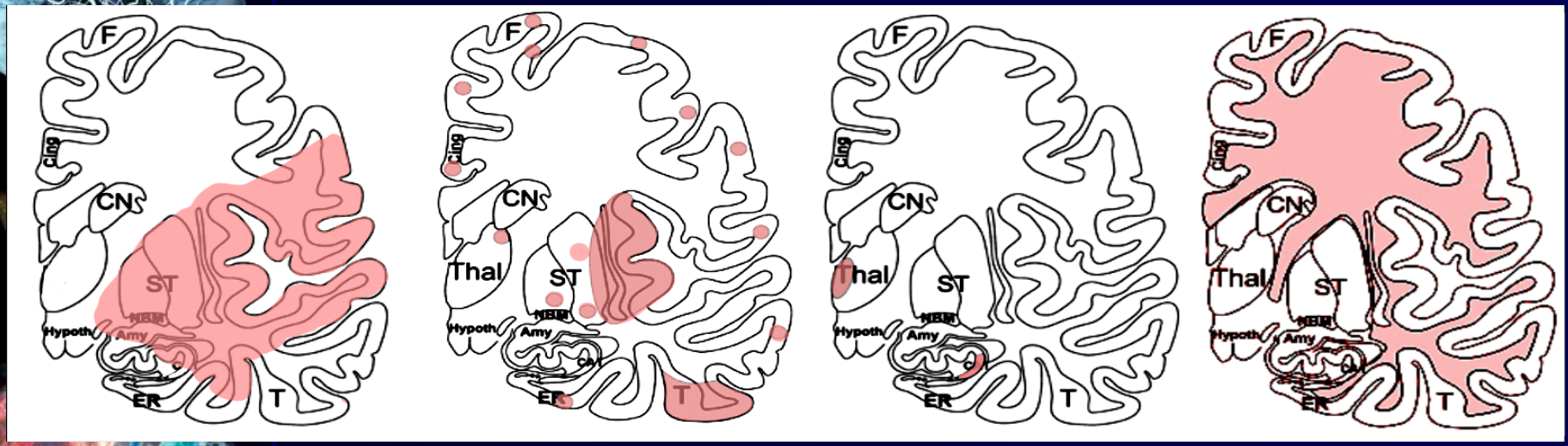


R.A.B

Vascular dementia

Different pathophysiological types:

- post-stroke dementia - solitary ischemic necrotic lesion with symptomatology after single strategic infarction (large stroke) decrease in cognitive abilities (speech, comprehension)
- multi-infarct dementia (MID)- gradually evolved symtopmatology due to mostly caused by silent mutliple succesive infarctions, decreased cognition in 2 or more areas; often shows step-wise progression ("stroke by stroke") of cognitive or motor deficit, history: hypertension, diabetes, more common in males,



R.A.B