

MEMORY AND ITS DISORDERS

MEMORY

- Not a unitary entity
- Ability to retain and retrieve learned information
- Learning and Memory

DEFINITION OF TERMS USED IN NEUROPSYCHOLOGICAL MEMORY RESEARCH

- ENGRAM - Hypothetical memory trace
- FORGETTING - loss of information for recall
- FREE RECALL – Retrieval without help
- CUED RECALL – Retrieval with help
- RECOGNITION – Identification of previously preserved stimulus in a list
- AMNESIA – Loss of memory
- AMNESIC SYNDROME – Global memory loss in explicit domain
- ANTEROGRADE AMNESIA – Inability to acquire new information after damage
- RETROGRADE AMNESIA – Inability to retrieve information from storage before damage

TYPES OF MEMORY:

•TIME-DEPENDENT FORMS :

1. Sensory memory
2. Short-term memory
3. Long-term memory

•CONTENT-DEPENDENT FORMS :

1. Declarative (Explicit)
 - a. Episodic
 - b. Semantic
2. Non-declarative (Implicit)
 - a. Procedural
 - b. Conditioning

MEMORY SYSTEMS

MEMORY ASSESSMENT

Modal Memory Model

CLINICAL FEATURES OF IMPAIRED IMMEDIATE RECALL

- Shortened Digit span
- Amnesia or “Lacunes” of memory
- Impaired working memory

- Fluctuation of memory deficit
 - “Sundowning”
- Attentional Matrix

ETIOLOGY OF IMMEDIATE MEMORY DEFICIT

- Toxic – Metabolic Encephalopathies
 - Environmental stressors
 - Diffuse/Multifocal brain lesions
 - Focal brain lesions
 - Epileptic seizures

CLINICAL FEATURES OF AMNESIC SYNDROME

- Anterograde Amnesia for all explicit memory functions
- Retrograde Amnesia for non-consolidated information
- Immediate recall is normal
- Implicit learning is preserved
- Occasional confabulation and more impaired insight in thalamic amnesia
- Preserved perception, language, movement

ETIOLOGY OF AMNESTIC DISORDERS

- Herpes Simplex Encephalitis
 - Medial Temporal lobe infarction
 - Thalamic stroke
 - Anoxic brain injury
 - Transient Global Amnesia
 - Hypoglycemia
 - Thalamic tumor
 - Fornix damage
 - Paraneoplastic Encephalitis
 - Wernicke-Korsakoff’s syndrome
 - Alzheimer’s disease
 - Dementia of Lewy bodies
- Medial Temporal Lobe Amnesia
Diencephalic Amnesia
(Thalamic)

CLINICAL FEATURES OF RETRIEVAL DEFICIT

- Impaired recall
- Corrected by cues
- Intact learning

- Intact immediate recall

ETIOLOGY OF RETRIEVAL DEFICIT SYNDROME

- DORSOLATERAL PREFRONTAL DYSFUNCTION

1. Pick's Disease/Other frontal lobe degeneration
2. Strokes
3. Trauma
4. Infections

- FRONTAL WHITE MATTER LESIONS

1. Strokes
2. Demyelinating
3. Infections
4. Trauma

- CAUDATE NUCLEUS DISORDERS

1. Degenerative
2. Strokes
3. Infections

Sensory Information

ANATOMICAL SUBSTRATES OF MEMORY

Limbic Structures

Diagram of the Thalamic Nuclei (Dorsal view)

The Neural Basis of Memory: Encoding, Consolidation

The Neural Basis of Memory: Retrieval

Retrieval process

TREATMENT/MANAGEMENT

- Correct identified causes
- Pharmacotherapy
- Memory training
- Psychotherapy

Thank You