

# **Memory Rehabilitation in Early Dementia**

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## **Loss of Memory in AD**

- Memory impairment earliest manifestation of AD and other dementias
- Major impact upon daily life and function
- Often results in social isolation for person with AD and family/carer
- Sense of self
- Relationships – with family, friends

# **Experience of memory loss**

- How does a person cope with memory deficits
- People usually acknowledge difficulty with memory – even if not acknowledge or accept a diagnosis of dementia
- Feelings of shame, embarrassment, frustration – “fear of going mad”
- Carers also experience variety of emotions – anger, fear sadness, resentment

# Intervention

- People detected at earlier stage of disorder
- Medical intervention – anticholinesterase medication found to be useful
- LWML very beneficial
- Psychological aspects of intervention to assist a person with memory strategies been overlooked or ignored
- Research indicates that neuropsychological intervention may assist with memory function in early stage of AD

# Rehabilitation

McLellan (1991) identified rehabilitation as “enabling people who are disabled by injury or disease to achieve their optimum physical, psychological, social and vocational well-being.”

Neuropsychological intervention based upon the conceptual framework of rehabilitation can be implemented

# **Cognitive Rehabilitation**

- Wilson (1997) has suggested that “cognitive rehabilitation can apply to an intervention strategy to enable clients/patients and their family to live with, manage, by-pass, reduce or come to terms with cognitive deficits precipitated by injury to their brain”

# Cognitive Rehabilitation

- Principles suggested as a relevant intervention for people with AD
- Central to cognitive rehabilitation is an understanding of the person's strengths, abilities and deficits from a holistic approach
- Appropriate goals are developed based upon persons strengths to help with limitations

# **Cognitive Rehabilitation**

Based upon these cognitive rehabilitation principles following questions raised:

- Can a person with AD learn?
- Can behavioural changes be maintained?
- Can a cognitive neuropsychological model of memory assist?



# What is Memory

- Divided into several sub-systems which can operate independently
- In dementia, not all memory is affected – one or more of these sub-systems
- People with AD will experience difficulty with some aspects BUT not all – others remain intact

# Memory

- Memory involves registering, encoding and storing information so that is not forgotten and then recalling it when required
- Impairment can affect any or all of these processes
- In AD people usually experience difficulty with encoding new information

# Brain Structures

- In AD impairment usually is found in medial temporal lobes, particularly the hippocampus – very important for establishment of new explicit memories
- People may also have difficulty with frontal lobe function – organising material at encoding, searching at retrieval and linking events with context

# Memory

- Divided into working memory and long-term memory
- Working memory – ability to retain information in mind long enough to process it and to act upon it
- Working memory further divides into various components, only some of which may be affected in early stages of AD

# Long-term Memory

- Explicit memory - conscious recall of previous experiences
- Typically affected from earliest stages
- Divided into episodic memory: memory for personally relevant events and usually very much impaired in PWD

semantic memory: factual and general knowledge, may be mildly impaired, however not always

# Implicit Memory

- Implicit memory - memory is expressed indirectly through performance of a task, without need for conscious recollection
- Aspects of implicit memory are often well-preserved in people with early AD – not only familiar tasks performed, people with AD are able to learn new skills

# Learning Interventions

- Interventions with memory rehabilitation should therefore reduce the load on explicit memory, esp. episodic memory
- Use compensatory methods and environmental adaptation
- Learning methods with an emphasis on encoding should be more beneficial
- Learning should concentrate on small amounts of selected information that are of particular importance for that person

# **Interventions - Compensatory Strategies**

- Can be used to reduce demands upon person's explicit memory & act as substitute for impaired aspects of memory
- External aids – can act as substitute (diaries), prompts (post-it-notes), memory centre (photos with names, calendar appointments may alleviate repetitive questions) personal memory wallets
- Study used a digital watch, beeped every hour to orientate a person to look at his notebook – able to keep to his schedule and improved his self-esteem (Bourgeois, 1992)



# **Interventions – building on preserved memory**

- Research has concentrated on preserved procedural memory to improve ADLs and maintain a person's independence
- Training involves consistent practice – without need for explicit verbal memory
- Results achieved with washing, dressing, cooking and writing Zanetti (1997)

# **Interventions – facilitating remaining explicit memory**

- Person with AD has difficulty using usual methods of encoding information, organising that information into different categories and linking it to existing knowledge
- Research shown that when appropriate support provided at time of encoding & retrieval, people with AD show improved episodic memory performance
- Benefit from longer exposure also guidance & prompting when encoding, prompts & cues when retrieving, support to maintain gains

# Cues & Prompts

- Imp to make conscious effort to process information – not just look or listen passively (Bird & Luszcz, 1993)
- Semantic elaboration of material beneficial as semantic memory less affected than episodic memory – deciding what category item belongs to & linking to other factual knowledge
- Better if person able to identify categories & links
- Multimodal encoding can enhance performance – hearing/seeing also acting out

# Mnemonic Strategies

- People with AD usually keen to recall names of people imp to them – family members, social group
- Visual imagery – taught to use prominent facial feature to improve retention of face-name association
- Mnemonic strategies useful for limited numbers of people with AD

# **Expanded Rehearsal – Spaced Retrieval**

- Based on experimental psychology - indicating benefits of spacing self-administered new information at gradually increasing intervals
- Aid people with memory disorders – adapted for AD
- Information presented & recalled immediately
- Recalled again & again at gradually increasing intervals - 10, 20 sec...20,30 mins
- Based on preserved working memory

# Expanding Rehearsal

- Expanding rehearsal beneficial for everyday tasks – face-name associations, naming household objects, remembering locations of household items
- Intervals adjusted to person's performance, participants experience a high success rate & respond positively
- Arkin (1996,1998) used instructional audiotapes of personally relevant information, interspersed with questions...pause and answer provided. Narrative divided in section, each followed series of review questions. Repeated opportunities to rehearse the answers & receive instant feedback

# Research

- Clare et al (1999, 2000, 2004) based research on errorless learning principles and developed interventions to assist with everyday memory deficits
- Errorless learning structures situation so errors are avoided or kept minimum, assists person with learning disability & brain injury
- Neuropsychological battery performed premorbid & current IQ, episodic memory, visuospatial perception
- Follow-up assessment at 1, 3, 6 months after intervention – benefits found after 24 months



# Research

- Study assisted participant to recall 11 members from a social group
- Combination of strategies – participant assisted to identify a verbal elaboration of name based upon facial features, name trained with vanishing cues and practiced by expanding rehearsal. Photos used in training
- Carer assisted at home between sessions and after completion of intervention
- Aspects maintained 3 years



# Studies

- Participant wanted to learn names of members in support group – verbal elaboration based on facial features. Repeated presentation, expanding rehearsal. Practice at home with carer input
- Participant wanted to improve recall of personal information. Personal quiz devised and items trained using expanding rehearsal and audiotape similar to that used by Arkin. Carer assisted between sessions

# Clinical Setting

- Clare et al found positive outcomes in research
- Identified need for application in clinical setting
- Caregiver involvement beneficial
- Important for participants and carers to identify personally relevant information
- Individual's specific difficulties can be approached in flexible manner
- Cognitive stimulation incorporated into everyday routine, several days per week over several months

# Holistic Approach

- Memory interventions occur in variety of contexts – home, outpatient individual and groups, residential settings
- Important to focus on person's needs, function, well-being
- Aware of emotional reactions of both person with AD & carer
- Examine quality of life

# Clinical implications

- Acknowledge learning theory and neuropsychology of memory can play role in intervention for people with AD
- Fit well with person-centred approach
- Respecting & recognizing individual's needs, adjustment to AD and emotions, including coping strategies
- Therapy needs to be conducted in supportive environment

## Directions

- Ongoing clinical studies
- Incorporated into memory loss clinics?
- Resources available – staff, time
- Time taken to implement approaches
- So far positive interest from people attending LWML groups in Hunter
- Further research being conducted