Effectiveness of Multimodal Intervention in a Case of Dementia

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Abstract

A case of Dementia, indexed patient being 57 years old male ex-editor of a newsweekly with complaints of gradual progressive decline of memory, with subsequent social withdrawal and findings of noticeable cognitive deficits where intervention focused on the overall improvement of the client. Objective: Adoption of a multi-modal therapeutic intervention programme to enhance quality of life (QOL) of the patient, enabling him to carry out activities of daily living (ADL) and guiding his family to take adequate care of him. Method: multi-modal intervention in terms of Neuropsychological Rehabilitation, infrastructural and Prosthetic Changes, Care Giver Support and Behaviour Management was provided to the client. Results: There was an overall improvement in the QOL, ADL and mood state of the patient and reduction in caregiver stress. Conclusion: Imbibing a multimodal therapeutic plan helped to manage the client and family better, which was maintained even at one-year follow-up.

Key words: *Dementia, LNNB, WCST, Multimodal therapy, Cognitive retraining.*

INTRODUCTION

Dementia is a disease that treads a path of progressive and irreversible cerebral devastation. WHO defines Dementia as a syndrome – usually of a chronic or progressive nature – in which there is deterioration in cognitive function (i.e. the ability to process thought) beyond what might be expected from normal aging. It affects memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgment though consciousness is not affected. The impairment in cognitive function is commonly accompanied, and occasionally preceded, by deterioration in emotional control, social behaviour, or motivation. International Classification of Diseases (ICD)- 10 specifically mentions dementia to be characterized by decline in memory, which is most evident in the learning of new information. In more severe cases, the recall of previously learned information may be also affected. The impairment applies to both verbal and non-verbal material. The importance of a reliable history from an informant and findings from neuropsychological tests or quantified cognitive assessments have been suggested in ICD 10 to verify the nature and severity of decline and reach a diagnosis.

Although positive impact of cognitive exercise to dementia-relevant domains such as general cognition and daily functioning (Valenzuela&Sachdev, 2009) and cognitive stimulation therapy programme in dementia (Spector et al, 2003) have been reported, cognitive retraining in dementia is not suggested owing to the irreversible progressive decline in cerebral functions in dementia. Accordingly, in this case goal has been planned to meet the needs of the patient seeking ways to compensate for his deficit function.

Brief Case History

The client was gainfully employed as an editor of a newsweekly till the beginning of 2005. His problems initiated with anomia. Gradual progressive decline of Memory followed with predominantly Low Mood and Development of Depressive Symptoms in him. Medical help was sought in October 2005. C.T Scan and EEG tracing done in the initial stages (2005 and 2006) could not detect any abnormality. However, an MRI done in May, 2007 showed multiple ill-defined altered signal intensity areas suggestive of angiopathic changes in subcortical white matter regions on both sides. Complaints with which the client presented were inability to recall events, which included receiving payments received phone calls or meeting people which were greatly affecting his work as an editor. In addition to the same he had persistently low mood, disturbed biological

functions, social withdrawal and ineffective performance at work. He was referred from Bangur Institute of Neurology for neuropsychological assessment and management of the case.

Diagnostic Formulation

Indexed patient, 57 years old, suburban, Hindu, married, Bengali, graduate male ex-editor of a newsweekly, came with the complaints of inability to recall names and a gradually progressive decline of memory specifically to recall events, meeting people, receiving payments, or attending phone calls along with withdrawal from the family members, with disturbed biological functions, inability to remain gainfully employed, with recent MRI reports showing multiple ill-defined altered signal intensity areas suggestive of angiopathic changes in subcortical white matter regions on both sides, with a continuous course and deteriorating progress, exacerbated in the last couple of years, along with mental state examination findings of marked deficits in Memory- with impaired immediate, recent and remote memory and working memory problems, noticeable concreteness in abstraction, with occasional jocularity and inappropriateness of affect, adequate judgment and insight of grade 4 suggests the: Provisional Diagnosis of Dementia.

REASONS FOR TAKING UP THE CASE FOR INTERVENTION

In order to slow down the rate of behavioural decline, to handle depressive symptoms owing to loss of employment and inability to remain occupied with work and guiding his family to take adequate care of him as well as preparing them for the general deterioration of functions in the client. Moreover to help patient to be autonomous intervention was undertaken as people can become de-skilled if their needs are automatically met by others (Stokes and Goudie, 1990). Three Goals of Therapy were charted out as follows:

- Promote quality of life through the provision of enhancing personal control and choice
- Provide opportunities for independent behaviour and age-appropriate activity which are relevant and rewarding to the patient
- To be able to maintain dignity in client's limited sphere of functioning

ASSESSMENT

In order to achieve the goals of Therapeutic Intervention a multi-modal therapeutic intervention programme was adopted to primarily enhance quality of life (QOL) of the patient, enabling him to carry out activities of daily living (ADL) and guiding his family to take adequate care of him, being better equipped to deal with the consequences of a neurodegenerative disorder.

At the outset Baseline Measures were obtained. Mini Mental Status Examination (MMSE) score of 20 indicated moderate degree of impairment in basic cognitive domains, specifically in the domain of memory.

On the Luria Nebraska Neuropsychological Battery (LNNB) there was elevation on all the clinical and summary scales, except reading (C8) which is depicted in the following figure.

As indicated in Figure No. 1(Appendix)

It is to be mentioned that his performance suffered owing to his working memory deficit which made it difficult for him to process online information and deal with the ongoing stimuli accordingly. LNNB findings reflected cortical dysfunction in the client. His performance showed deficit in all the domains with a gradual decline. The summary scale elevation for Pathognomonic as well as Right (S2) and Left Hemispheres (S3) suggest difficulties in the client on a wide range of tasks, and almost no discrepancy between S2 and S3 scales is suggestive of generalised and bilateral brain dysfunction. The Localization Scales of L1 and L5 that revealed bilateral deficit in frontal lobe functions helps to explain his concreteness in thinking, cognitive rigidity,

jocularity and inappropriate affect observed on mental status examination. The finding may be corroborated with the present complaints of erosion in comportment, including, erosion of insight, judgment and foresight.

Working Memory Tasks reflected a deficit in pre-frontal-parietal network. Performance on Bender Gestalt Test (BGT) revealed adequate Form perception and visuo-motor coordination. Although rotation was seen on one card of the BGT, visuo-motor maturity of the client was adequate. The figure drawings highlight the same :

As indicated in Figure No. 2(Appendix)

Wisconsin Card Sorting Test (WCST) revealed marked deficit in cognitive flexibility where he failed to shift sets (Categories completed =2) and modify responses in accordance to environmental feedback, wherein he could not recall the task demand and continues to perseverate on a particular sorting principle.

Environmental Assessment

Informant's Questionnaire for Cognitive Deterioration (IQCODE) ratings predictably reflected significant deterioration in client' cognitive functioning when compared to his erstwhile abilities.

INTERVENTION PROGRAMME

Methods:

Multi-modal intervention in terms of Neuropsychological Rehabilitation, infrastructural and Prosthetic Changes, Care Giver Support and Behaviour Management was provided to the client. Intervention began with presentation of formulation to the family – members. Psychoeducation included explanation of what dementia portends, the prognosis of the dementing disease, information about mechanisms of disease, its causation, role of heredity and the meaning and cause of specific behaviours. Thereafter, at the individual level of management: goals were planned in order to meet clients' needs. It was six-fold intervention programme with neuropsychological retraining, behaviour management, reality orientation and reminiscence therapy, environmental management, socio-legal guidance and working with the caregivers.

Neuropsychological Rehabilitation & Retraining:

The programme was specifically made to aid the patient to ably perform small tasks which were of significance to him and the loss of which were causing distress to him. The retraining tasks were designed to enhance independence in activities of daily living (ADL). The tasks are listed as follows:

a) Cognitive Retraining Tasks like card sorting, diary writing, counting coins and marking out dates were given to him.

b) Behaviour Management to handle excesses and deficits were done. Activity scheduling in a 'Prompt-Praise' Approach was encouraged.

c) Reality Orientation and Reminiscence Therapy was targeted at providing the client with inputs related to his past which made daily living easier for him.

d) Environmental Management included introducing prosthetic changes in home environment. It was achieved through clear labeling and signs to identify tins, packets and objects of everyday use. Use was made of words and pictures from the newspaper to aid in communication. Calendars were regularly up-dated and used for reference and clocks were set accurately to help client to be better oriented.

e) Psychosocial Issues: Since patients' judgement was gradually becoming poorer, other competent individuals were encouraged to assume their decision-making responsibilities. The family was told to consider a living will

while the patient was still able to take decisions. Patients need to know their preferences and reach plans that feel right to them prior to becoming too impaired. In addition, most of the key family members were made to understand the patient's wishes. The creation of a living will allows the patient to make explicit his or her wishes regarding life support and the scope of medical care to be pursued in the terminal phases of illness. Early discussion of this issue was done to save the family the pain of making the decision later under more emotionally trying circumstances.

f) The Caregivers intervention also focused on the family in order focus upon normalization, person-centred care, with adequate emphasis on caregiver guidelines, demonstrating how to start the patient off on the task, to praise when attempts approximate target skill, the importance of rehearsal and practice. They were additionally asked to provide client with Identification Card, which would need to be attached to his garment at all times. They were also instructed to clearly communicate with client, in simple, brief sentences. Caregiver Support was provided and caregivers were informed how to best handle caregiver burden, which is ameliorated when other family members provide support, share in the care-giving, visit the patient and caregiver, and facilitate brief respite periods for the primary caregiver- in this case the wife was to be supported by the siblings and her sister-in-law. They were even cautioned against Burn-Out.

OUTCOME OF THERAPY

Post Intervention Assessment: showed that there was an overall improvement in the QOL, ADL and mood state of the patient and reduction in caregiver stress. Upon a one year follow up it was seen that dementia had affected the overall cognitive functioning of the client – deteriorating in terms of regular functioning (MMSE= 10). However, improvement in Quality of Life seen at 1 month follow-up was maintained with patient taking greater interest in his ADL. Improvement in sociability- with patient operating well within the structure of the family and Caregiver Stress too was being handled better.

As indicated in Figure No. 3(Appendix)

THERAPY PROCESS

Attempting to meet the needs of dementing people who are destined to deteriorate can be disheartening. Working with rapidly progressive disorder which would ultimately bring about neuronal loss entailed focusing upon the premise that non activation of the neuronal pathways would add to further deterioration. Banking upon the plasticity of the brain and working towards enhancing the habit strength of certain acts would enable the person to function better. Although deterioration was but a known outcome, the motivation to work with such a client came from the ability to make a difference in the quality of life of the individual.

CONCLUSION

Imbibing a multimodal therapeutic plan in a case of dementia helped to manage the client and family better, which was maintained even at one-year follow-up.

REFERENCES

1. Spector A, Thorgrimsen L, Woods B, Royan L, Davies S, Butterworth M, Orrell M. (2003) Efficacy of an evidence-based cognitive stimulation therapy programme for people with dementia: randomised controlled trial. Br J Psychiatry, 183: 248-54.
2. Valenzuela M., Sachdev P. (2009) Can Cognitive Exercise Prevent the Onset of Dementia? Systematic Review of Randomized Clinical Trials with Longitudinal Follow-up, The American Journal of Geriatric Psychiatry, Volume 17, Issue 3, Pages 179-187

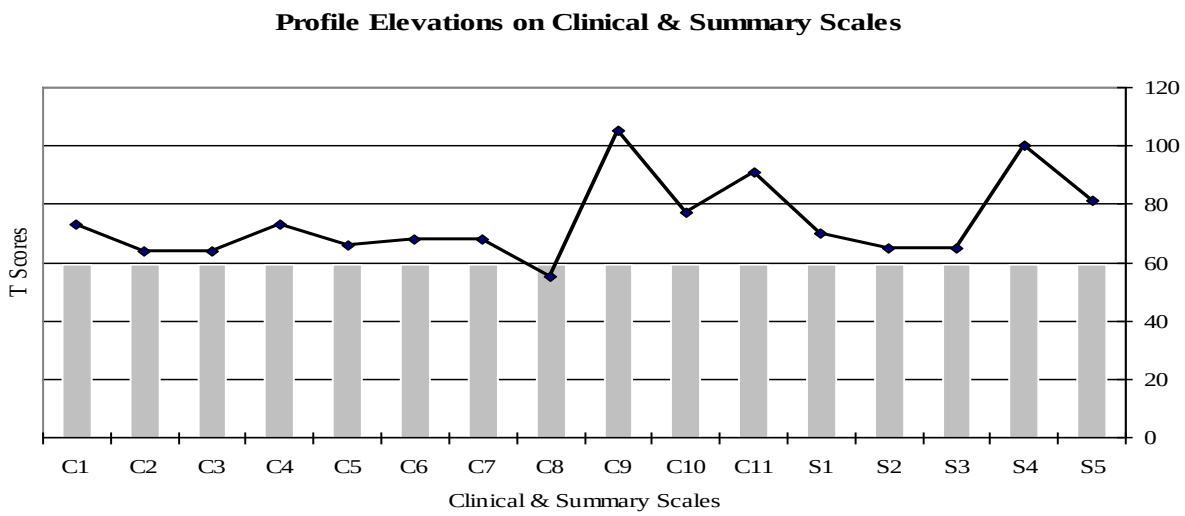

Figure No. 1 Profile Elevations on Clinical & Summary Scales on LNNB

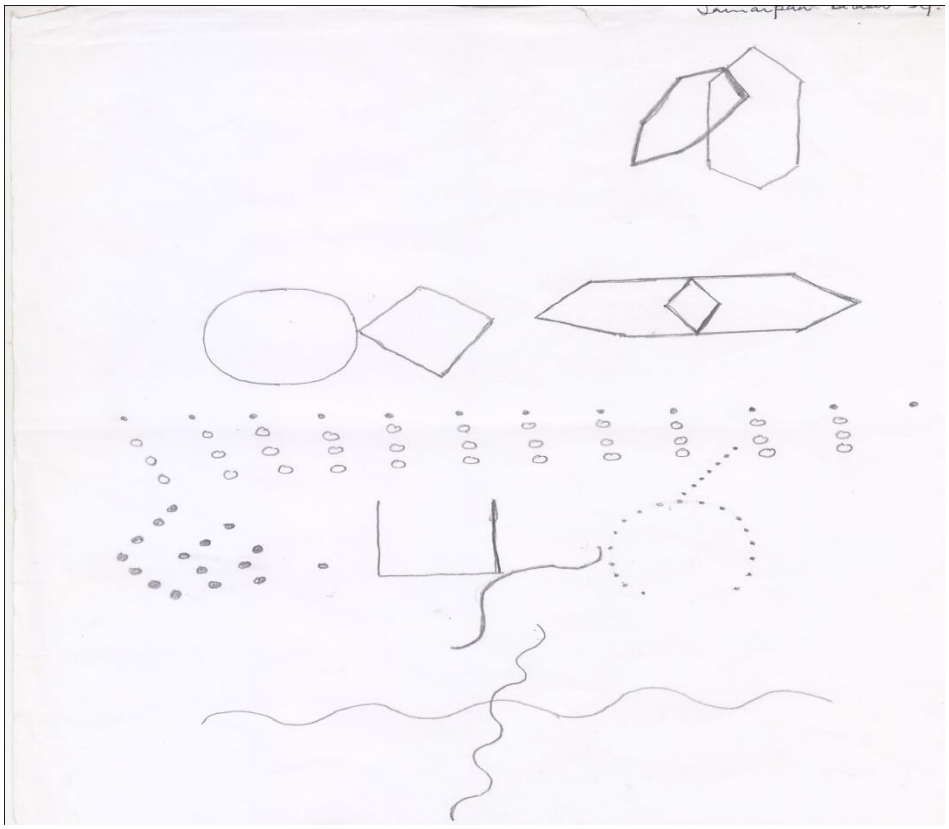

Figure No. 2 Pre-Intervention drawing of BGT

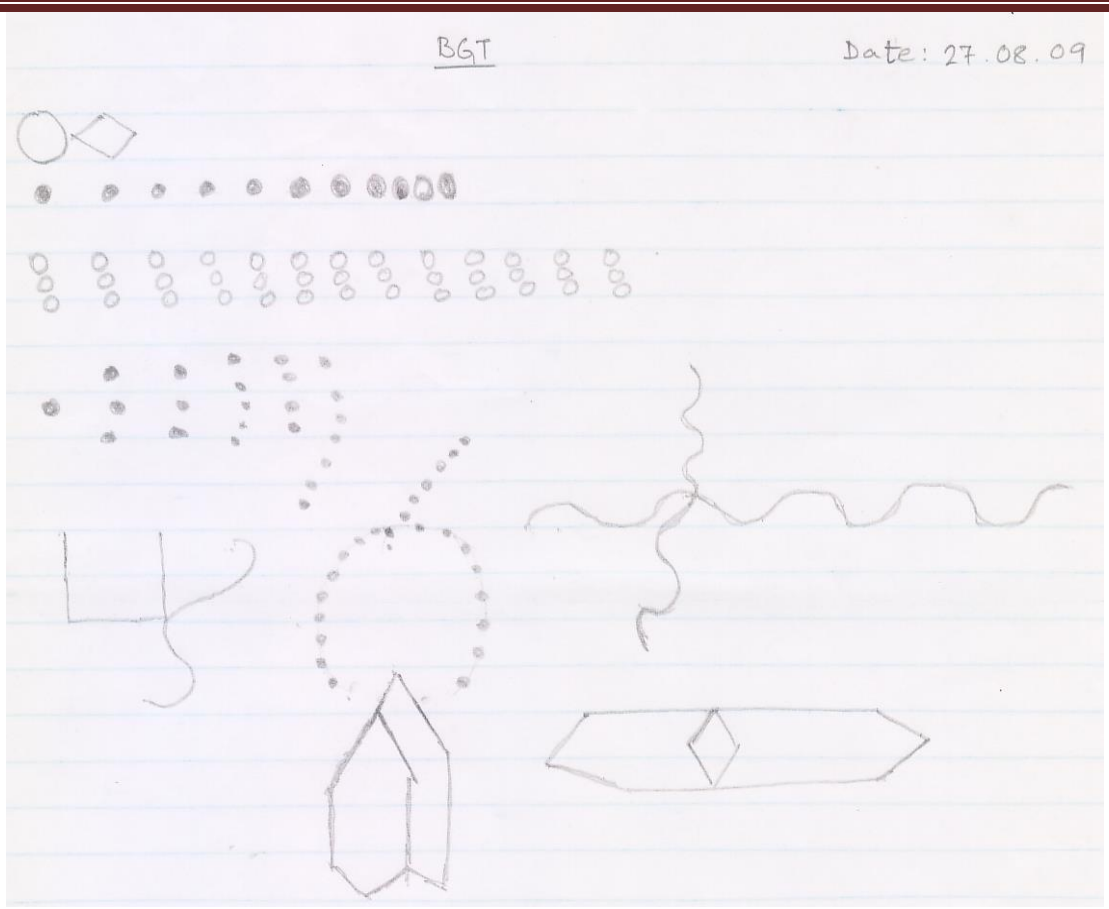

Figure No. 3 Post-Intervention drawing of BGT