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EXTENDED OCCUPATIONAL THERAPY BASED REHABILITATION FOR A YOUNG CLIENT FOLLOWING HEAD INJURY – A CASE REPORT

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ABSTRACT

This case study describes an unique long-term functional recovery process toward successful rehabilitation for a young male student with post traumatic head injury. The client was referred to Occupational Therapy (OT) for assessment and management following head injury sequeale. On initial assessment, the client presented with decreased arousal level, cognitive deficits, weakness in the right upper and lower limbs, left sided cerebellar features, difficulty in functional mobility and was dependent for all his daily routine activities. Occupational Therapy intervention focused on strengthening activities, functional balance and mobility retraining, coordination retraining, cognitive rehabilitation, Activities of Daily Living (ADL) retraining, pre academics and leisure skills. The Occupational Therapy sessions lasted for 45 minutes to 1 hour daily. In the initial few sessions more focus was given for sensory stimulation activities. After a month of Occupational Therapy rehabilitation, since the Glasgow Coma Scale (GCS) score improved from 8 to 14, intensive cognitive rehabilitation was provided. Therapy focus was given to the upper extremity strengthening and functional balance retraining. Following 9 months of therapy, the client has shown progress in independent in functional mobility – indoor and outdoor, able to use upper extremity functionally for daily living skills and therapy for higher level cognitive skills and meta-cognitive skills was initiated. The client showed maximum independency in daily living skills and pre-academic skills by the end of 12 months.

KEYWORDS: Traumatic Brain Injury, Occupational Therapy, Independent Living Skills, Cognitive rehabilitation

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INTRODUCTION

This is a case report of successful Occupational Therapy rehabilitation process for a young male client with post traumatic head injury – Diffuse axonal injury (DAI). The head is one of the vital organ and also the most vulnerable part in the human body for injuries, especially due to vehicle accidents[1]. Traumatic head injury is one of the important causes for mortality and disability in young adults. It can have an impact on physical, cognitive and psycho-social skills[2]. Diffuse axonal injury is caused from widespread tearing of axons and small vessels by shearing forces and is defined as prolonged post-traumatic coma over 6 hours following injury without demonstrable mass lesion[3].This case report provides a unique long- term Occupational Therapy management following head injury. The client is a 21 years old male student with right hand dominant, diagnosed with Diffuse Axonal Injury following a Road Traffic Accident (RTA).

Occupational therapy based assessments and interventions

The initial assessment revealed that Glasgow Coma Scale (GCS) score of 8 out of 15 indicative of severe brain damage. Sensory Stimulation activities such as movement stimulation -passive rolling to sides, supported sitting with visual, auditory and tactile stimulations were provided. Appropriate positioning on the bed and splinting was emphasized for prevention of secondary complications. Over the initial one month of rehabilitation, GCS score improved from 8 to 14. Following GCS, Mini Mental Status Examination (MMSE) was done to assess the cognitive abilities. The MMSE score was less than 23 indicated a need for further cognitive examination. Lowenstein Occupational Therapy Cognitive Assessment (LOTCA) was used to assess basic cognitive abilities which were thought to be a prerequisite for managing every day activities. Results revealed impairments in cognitive abilities. No issues were present evidently related to apraxia, aphasia and agnosia. In Motor evaluation, muscle weakness was present in right limbs. According to Manual Muscle Testing, the muscle power of upper limb, trunk & abdominals and lower extremity was overall 2, 3 and 4 respectively, Non equilibrium tests were positive suggestive of in-coordination on the left side. Functional Independent Measure (FIM) score was 41out of 126 indicating the need for assistance in ADL. Occupational Therapy was provided to the client on a daily basis. Both remedial and compensatory cognitive strategies were initiated. Activities to improve orientation, attention (sustained, selective and divided) and memory were initiated. Simultaneously, functional balance and mobility retraining, functional bed mobility, sit to stand and functional balance activities in sitting and standing, functional walking activities, strengthening activities for right side were provided. Coordination activities were provided for left upper limb. Basic activities of daily living (B-ADL) were initiated under supervision. Family was educated regarding the condition and was asked to motivate and facilitate independence by various methods based on client's abilities. By 6 months, client was able to walk under supervision. He scored 20 out of 56 on Berg Balance Scale suggestive of high risk of fall. Hence, intensive functional balance retraining and fall prevention strategies were initiated. The client improved in attention, following commands and ability to do structured activities. But, deficits still persisted in short term memory and higher level functioning skills. Coordination improved on left side as the client was able to manage daily skills with minimal intentional tremors and slowed performance. FIM score improved from 41 to 114. Following intensive Occupational Therapy program, rehabilitation, the client showed maximum improvement in functional mobility, functional use of upper limbs for daily living skills and cognitive status within 9 months. It was observed that the client hardly showed any participation and motivation in getting involved in leisure activities. The client scored 3/8 on Lawton Instrumental Activities of Daily Living suggestive of very limited participation in Instrumental Activities of Daily Living (I-ADL). Client also showed deficits in hand writing, use of laptop and academic activities. Leisure activities such as playing chess, card games, solving puzzles and word games were incorporated. Table top and computer based memory games were provided to the client as a part of memory retraining. Pre academic skills such as reading, handwriting practice using built-up pen, ergonomically designed desk and repeated practice of copying paragraph with time limits, arranging and filing activities, lap-top based activities and Instrumental activities such as money management, shopping skills were also incorporated in the therapy. At 12 months, the client was fully independent in BADL and IADL performance (7 out of 8 in Lawton Instrumental Activities of Daily Living) and was able to perform table top leisure activities and pre-academic skills. The rehabilitation process was continued for further assessment of executive functions and self-awareness. Currently, the client shows few deficits in short-term memory, internal motivation and appropriate assertiveness skills. Intervention has been initiated for memory issues using compensatory strategies, assertiveness skills and vocational aspects.

DISCUSSION

This case report describes a successful recovery of a client with post head injury. The client was referred to Occupational Therapy (OT) services one month post head injury and OT services were continued for a longer period of follow up i.e.; more than a year. In this case study, the intervention is divided on the basis of performance components and performance areas. The required performance components such as strengthening, coordination, balance and cognition were retrained as a pre-requisite for the performance areas such as ADL, IADL, pre-academic skills and leisure skills. Overall, the intervention was focused on Sensory stimulation, cognitive rehabilitation, functional balance, mobility retraining, fall prevention strategies, caregiver education, upper extremity strengthening, handwriting retraining, coordination retraining, Activities of Daily Living and Instrument Activities of Daily Living retraining,

facilitating leisure skills, obesity management and pre-academic skills.

IMPORTANCE AND OUTCOME

This case report highlights the importance holistic approach for long-term rehabilitation to attain the complete recovery of the client. The major emphasize is on the importance of occupational therapy in achieving a better quality of life following head injury. It is important to know that in some clients with traumatic brain injury - DAI, a progressive degeneration in white matter may lead to an impact on cognition. That does not necessarily mean that there will be a decrease in the level of performance in daily living skills[4]. Hence, continuation in rehabilitation program in a graded manner for a prolonged period is necessary to achieve maximal functional independence in clients with Traumatic Brain Injury.

CONCLUSION

This case report describes the importance of Occupational Therapy in the rehabilitation of clients with head injury. In order to achieve a maximum independence in daily routines a continuous and longer duration of follow up as per the recovery of the condition is required. A client centered and a holistic approach is required in rehabilitation for a maximal functional recovery in clients following a head injury.

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