Conductive education in the treatment of unilateral neglect: A case report

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ABSTRACT
Objective: To determine whether motor learning using conductive education principles help in unilateral neglect.
Materials and Methods: Descriptive case study – informal, motor relearning program based on the principles of conductive education through visual tracking was performed on a single case of a 62 year old unilateral neglect. Pre- to post-intervention outcome was measured on upper and lower limb function scale.
Results and conclusion: Early intervention through conductive education helped in hastening the motor recovery in this case of unilateral neglect. Remarkable recovery was noted in the distal segments of the upper limbs and knee joint of lower limbs.
Keywords: unilateral neglect, conductive education, visual tracking

INTRODUCTION
Unilateral neglect presents as lack of awareness or lack of response to stimuli on one half of the body. Usually left side neglect is more frequently seen than right side neglect in the clinics. Patients with brain diseases including stroke, head injury, etc. may act oblivious to one side. Generally, the treatment approach towards this situation includes approaching the stroke patient from the affected side, keeping objects like TV, phones, etc. on the affected side to make the patient search for them, and incorporating the affected limb into activities. Also, there are references which state that TENS, pneumatic compressors, etc. may also be used for crafting awareness of the affected side. Some inconclusive opinions on the effectiveness of conductive in this condition have surfaced recently.

CASE REPORT
Mr. Amitab (name not real), 62 years old, is a known case of right spastic hemiparesis following a 2nd stage Glioblastoma Multiforme at left parietal lobe. He had undergone open debulking of the tumor around two months back and was on radio-chemotherapy at the time with no major relative complications.
On evaluation, the patient was conscious, alert, oriented (GCS – 15) and systemically stable. On observation, the patient appeared to be obese and irritated. He was wheelchair-dependent and had grade 2 pitting edema on the right foot. On physical examination the visual acuity and speech functions were normal. Sensory examination revealed loss of fine touch sensation on the right side of the body with all other sensations being intact. Motor examination of the right side upper limb showed mild spasticity and decrement in muscle power on “Oxford Manual Muscle Testing” mainly on the shoulder abductors and flexors (3) elbow flexors and wrist flexors scored (4), hip flexors (2) and knee flexors and extensors (3)1. Dorsiflexion and plantar flexion could not be assessed due to ankle edema. The reflexes and tone appeared to be within normal limits. Coordination, balance and mobility were affected (FIMS – III)2. He was depended on catheter and laxative for bowel and bladder functions.
Throughout the intervention, the patient was taught to relearn the motor skills of the affected side via various sensory stimuli like (a) Visual biofeedback wherein the patient looks at the movements as he performs and does it in several repetitions, (b) The patient speaks out the action prior to and while performing the action which helps him to learn it, (c) breaking down each component of a task to be performed and practicing it in numerous repetitions and integrating them later for the performance of the task as a whole, and (d) sensory reduction for the loss of fine touch in which the patient sees the area being touched by cotton. First two methods aim at reminding the brain about the right side often neglected through continuous visual-auditory sensory stimuli.

DISCUSSION

Based on the literature reviews, the physical therapy programs were modified accordingly. Applications of motor control training based on the principles of conductive education were followed. These exercises involved rhythmic repetitive movements to promote mobility and dexterity with continuous visual and verbal tracking. These were techniques to help with activities such as mobility, general coordination, balance, transfers, etc. The therapy program followed the guidelines of National Strength and Conditioning Association (NSCA), i.e., training extended for almost two months with a frequency of 4-6 days per week in sessions of 45 – 60 minutes.

The client had notable changes in the muscle power especially at the distal segments. Performance compared on "Limb Functions Scale" (LFS) showed clinically significant improvement in right motor status after the interventions. Remarkable improvements in the joints and muscles directly under his visual field were noted. This might be because of the extra amount of focus he laid towards the activity through visual tracking.
It is known that the brain sense motor activities through continuous and ongoing sensations from the peripheral systems. Here, in this situation, the patient has lesser movements and attentions towards the affected side which has already cut-down the sensory feedback. Visual tracking, of the activities performed can substitute the lesser perceived joint senses, and thereby fed the brain about the movements and events.

The practice of movements as per the NSCA protocol helped to improve the weakened muscle. Also, these actions might have helped to improve the patient’s activity level of the affected side by helping the brain to re-learn the task and strengthening the muscle simultaneously.

**CONCLUSION**

Early intervention through conductive education helped in hastening the sensory motor recovery in the case of unilateral neglect. The practice of these methods helped the patient to significantly gain an independent functional status in the performance of the activities of daily living.

**REFERENCES**


