

HOMONYMOUS HEMIANOPIA: TRAINING COMPENSATORY STRATEGIES

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Abstract

SEETEC is a project funded by the Royal Guide Dogs Associations of Australia. It provides mobility training for people with visual disabilities.

Over the past two years, SEETEC has developed a programme for people who have homonymous hemianopia. Most people are referred following a stroke, head injury or removal of a tumour.

To date 169 people in NSW have been assessed for this service. Of these, 100 undertook a programme of visual training.

This paper summarises the objectives, method and results of the programme.

Key Words: Homonymous hemianopia, cerebral vascular accident (CVA), attention deficit, rehabilitation, vision training.

Homonymous hemianopia is a visual impairment which involves an attentional deficit as well as sight loss.¹ It is usually due to a single lesion of the optic pathway at or post chiasm. The visual defect is that of half field loss in the vertical meridian of the field. Homonymous hemianopia may affect any age group following a cerebral vascular accident (CVA), head injury or tumour removal.

There are many functional problems which may be associated with the field loss, these problems are determined by the extent and location of the lesion. Generally if the lesion occurs within the occipital lobe the client will compensate for any deficit unaided. Lesions occurring in cortical areas outside the occipital lobe will have a variety of problems. Some of these problems include; difficulty when moving in a confined space, neglect of people and objects within the area of field deficit and problems with scanning activities such as reading.

These functional problems cause extreme

handicap and frustration to the person. An important aspect of rehabilitation is to address these problems. Diller and Weinberg² formulated procedures in 1977 aimed at providing structure and intensive training to people with hemianattention. Hill¹ restructured this program in 1981 and extensively evaluated the revised program with 350 patients.

The revised program is currently being used in the rehabilitation of clients with homonymous hemianopia.

The aim of the program is to assist people to travel safely. This is achieved by defining the perimeter of the left or right field, overcoming perceptual rivalry, establishing an automatic seeking response into the affected field and improving the speed and accuracy of scanning. Client characteristics include an ability to learn (ie. no frontal lobe damage and an awareness of the visual loss). Training should commence at least one month after onset to allow time to develop cortical stability.

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METHOD

Apparatus:

A Diller and Weinberg Tracking Machine described by Diller and Weinberg,² is used during the static training phase.

Firstly, the visual loss is demonstrated to the patient using the machine with a central fixation light and a light at both the left and right extremities. The patient is then instructed to look to the affected field and locate illuminated lights. This task increases in complexity by increasing the number of lights to be located and the speed at which they are presented. The patient's ability to problem solve and retain visual cues is also assessed by sequencing the presentation of the lights. At the completion of this phase the patient should be able to scan the blind field rapidly.

The next phase is dynamic. The client is required to scan and locate objects presented vertically and horizontally within the field of view whilst walking. Scanning activities are repeated in a variety of outdoor situations until the client is visually safe or the level of visual safety is ascertained.

The following case study illustrates the positive value of this training to the client.

CASE STUDY

Mrs R, 63 years of age was referred for a tracking and scanning program five years after her CVA. Her medical report showed that she had a dense left hemianopia, left hemiplegia, chronic headaches and a chronic anxiety state.

Mr R informed me that his wife's main problem areas were that she missed food on the left hand side of her plate, was startled when people approached her from the left and was unable to enjoy being a passenger in a car because the environment made no sense to her.

Mrs R's hemianopia presented as severe when assessed on the Tracking Machine as she missed all the lights to the left of the centre and made no attempt to search for them. Perceptual rivalry was severe — Mrs R made no attempt to look left first when she was told there were lights on the left and right of the machine.

Over a three week period Mrs R was given nine sessions on the Tracking Machine. In these sessions she was taught how far she needed to turn her head to see the light on the far left

periphery. Once she learned this, she was trained to automatically look to the lights on the left before she looked to the lights on the right. Different combinations and the numbers of lights were continually presented to Mrs R until she was able to look to the light on the far left perimeter first and then systematically and accurately name the lights on from left to right.

Reading, static tracking and scanning exercises were then given to Mrs R. Dynamic exercises were not relevant due to Mrs R's severely restricted mobility.

Following the program Mr R told me that his wife ate all the food on her plate at meal times and looked to the left to avoid objects she had previously ignored.

Follow up visits at six weeks, three months and six months revealed that Mrs R had maintained the skills she had been taught.

Mrs R was able to enjoy going driving with Mr R and practised by reading the number plates of cars in front of them. Mrs R was also able to have her visual acuity accurately tested for the first time in four years because she now turned her head far enough left to see the entire chart.

SUMMARY

The rehabilitation program undertaken by Mrs R was part of the program developed by SEETEC for the Royal Guide Dogs Associations of Australia. To date 169 people have been assessed for such programs in NSW, of these people one hundred have undertaken visual training. The tracking program is a vital rehabilitation technique and should be used whenever possible. Further research and development should be encouraged to continue improvement of these techniques.

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References

1. Hill B. Cortical Defects of Vision and Disorders of Space Exploration. SEETEC paper, National Mobility Centre, Royal Guide Dogs Associations of Australia, 1983.
2. Diller L, Weinberg J. Hemi-inattention in rehabilitation: the evaluation of a rational remediation program. In: Weinstein EA, Friedland RP (eds). *Advances in Neurology*, vol. 18. New York: Raven Press, 1977.