Description and measurement of visual scanning training in Occupational Therapy for patients with visual search deficits following stroke

Key findings
- Therapy intervention for training visual scanning and search has been developed. The intervention is task specific to participants’ goal occupations and trains strategies for search using remedial activities and real tasks. The treatment was found to be feasible and acceptable to participants treated intensively over three weeks.
- A room search task for assessing search performance proved to be feasible and demonstrated changes in the distribution and starting point of search after the intervention. However these changes in search behaviour did not always lead to increased speed or accuracy. Participants with more severe visual impairments were more efficient in searching after the treatment while some more mildly affected participants took longer to find the object.
- A patient reported outcome measure (Visual Functioning Questionnaire VFQ25) was tested and found to be responsive in the sample suggesting it may be a good primary outcome measure for a clinical trial. The participants reported better visual functioning on the VFQ25 after the intervention.
- The intervention was endorsed as good clinical practice by a reference group of occupational therapists with special interest and experience in training scanning and search in people with visual impairments after stroke.

Project aims
This project aimed to prepare for an evaluation of effectiveness of visual scanning and search training in occupational therapy by achieving three important steps:

1. A detailed and systematic description of the intervention delivered in the community setting.
2. Development and pilot testing of a process measure to quantify search performance in the home context.
3. A feasibility study of the intervention delivered intensively over three weeks.

Background
Visual search is a process which is integral for carrying out most activities of daily living, for example, for finding utensils needed in preparing a meal or for avoiding hazards when crossing the road.

This essential process is commonly disrupted by visual impairments and reduced spatial attention after stroke. Affected individuals can experience long term limitations in everyday activities due to inefficiencies in observation and visual searching.

Occupational therapists working in stroke services include visual scanning and search training within their treatment. However it is not known if the intervention is effective for improving occupational performance and visual functioning.

Before the intervention can be properly evaluated for its effectiveness some essential development work is needed.
Methodology
To obtain a description of the intervention a specialist occupational therapist in stroke, working in a community service, made video recordings of her treatment sessions delivered to five participants with visual field deficits after stroke. The recordings were analysed using a framework approach. The findings were presented to a reference group of occupational therapists interested in vision after stroke for validation of the description as good clinical practice.

A timed room search task using keys placed in different parts of a living room over 16 trials was designed to measure search performance. Point of regard during the searches was recorded from a digital video camera worn on the participant’s head.

Feasibility of the defined intervention delivered three times a week for three weeks and of the room search task administered in the home before and after the intervention was tested with nine participants. In addition a patient reported outcome measure, the Visual Functioning Questionnaire (VFQ25) (Mangione et al 2001), was administered before and after the intervention.

Recommendations
Further work is needed before the intervention is evaluated in a clinical trial.

Some experimental work is needed to determine the efficacy of search strategies used in the intervention. The results from the study’s small sample suggest that strategies should be tailored to individuals’ baseline performance. For example starting the search in the blind field may be helpful in some cases, but a hindrance in others. Further work is needed to identify the most effective strategies for improving search performance in different individuals and to understand the mechanisms of the intervention for improving patients’ perceptions of their visual functioning.

A measure of search performance in real world tasks would be helpful to determine the mechanism for improving function, and for understanding which patients benefit. The room search task goes some way towards this, but further work is recommended to investigate the use of new technologies to achieve more flexible and more accurate recording of point of regard during real activities of daily living.

The visual functioning questionnaire (VFQ25) would appear to have potential as a primary outcome measure in a trial of clinical effectiveness of the intervention. Further research into its responsiveness and internal consistency in a larger sample of stroke participants is recommended.

Publication

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Reference