Neglect

Introduction

Unilateral spatial neglect is the failure to orient, attend, report or respond to stimuli (sensory or visual) in one side of space (personal or extrapersonal). The impairment cannot be explained by either primary sensory or motor deficits (Jehkonen et al. 2006). Typically it is the left hemi-space, as the lesion is usually in the right hemisphere (parietal), however this is not always the case and left sided lesions with right hemi-space neglect have been reported. Different subtypes have also been reported such as motor neglect, visual neglect, and representational neglect. Subcategories have also been described in reference to spatial domains such as personal (body space), peripersonal (reaching space), extrapersonal (far space) and representational space.

From a functional point of view failure to appreciate a hemi-space has many manifestations. People may fail to monitor physical positioning of a body part or only dress one side of their body, fail to eat from one side of the plate, fail to attend to people or events on the left, or collide with objects on their left. Thus safety is a major issue arising from neglect.

The presence of neglect has been linked with poor prognosis for functional recovery, increased dependence in mobility and ADL and longer rehabilitation length of stay (Jekhonen et al. 2006). Assessment and management are complicated by the presence of so many variations and subtypes and by degrees of severity. Whilst neglect may appear frequently in acute stroke, recovery in the majority is common.

Research

There are a number of screening tools to detect the presence of neglect (Bowen et al. 1999; Azouvi et al. 2006; Menon et al. 2004) however a gold standard is not evident. Jehkonen et al (2006) recommend a battery of tests be used to fully evaluate neglect and its manifestations.

Bowen and Lincoln (2007) updated their Cochrane review and found 12 RCTs investigating the use of cognitive rehabilitation for neglect. There was no clear evidence for or against any of the interventions. The forms of intervention reported included structured sessions, computerised therapy, use of aids and environmental modifications. Another systematic review by Luaute et al (2006) identified 54 studies of low to moderate levels with a variety of interventions such as visual scanning training (VST), limb activation, mental imagery, sustained attention training feedback training, sensory stimulation, eye patching and use hemi-prisms. Positive benefits were reported for the VST, mental imagery, feedback training and prismatic adaptation; however the level of evidence was generally low.

Three RCTs since these reviews have added to the evidence for: scanning training (when combined with stimulation of the hemi-hand) (Polanowska et al. 2009); right half-field eye patching (Tsang et al. 2009) and prism lenses (Turton et al. 2010) in addition to conventional therapy. However generalisation to activities was variable.

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NSF Guidelines

6.6.7 Neglect

a) Any person with suspected or actual neglect or impairment of spatial awareness should have a full assessment using validated assessment tools. (Grade C: Jehkonen et al. 2006; Bowen and Lincoln, 2007)

b) Patients with unilateral neglect can be trialled with one or more of the following interventions:
   - simple cues to draw attention to the affected side (Good practice point)
   - visual scanning training in addition to sensory stimulation (Grade C: Luaute et al. 2006; Polanowska et al. 2009)
   - prism adaptation (Grade C: Turton et al. 2010)
   - eye patching (Grade C: Luaute et al. 2006; Tsang et al. 2009)
   - mental imagery training or structured feedback. (Grade D: Luaute et al. 2006)

Suggested Assessment

A combination of the following will provide a comprehensive evaluation of neglect and possibly subtype presentations.

For **peripersonal space**:
   - Behavioural Inattention Test (BIT) – 9 subtests mostly pen and paper (Wilson et al 1987)
   - Four-test battery by Pizzamiglio et al. (1989)
   - Cancellation tasks (e.g. target could be single letter, double letter, line or shape)
   - Line bisection
   - Copying and drawing

To assess **personal neglect**
   - ask the patient to comb his hair, shave or put on make-up, or
   - to reach his left arm with his right hand.
   - The Fluff test - requires patients to remove, with one’s eyes closed, 24 2-cm diameter circles attached with velcro to the front of their clothes.

Neglect in the far **extrapersonal space** can be assessed by requiring a patient to describe objects in the room around him/her.

A full functional evaluation also needs to occur to assess the impact of the neglect on daily life (e.g. Barthel Index, FIM, Rivermead mobility index, Katz ADL index, Frenchay Activities Index)
Practice Suggestions

Depending on the person’s presentation and evaluation results, one or more of the following can be applied and evaluated:

**Simple cues** to draw attention to the affected side – velcro markers, signs on the wheelchair, verbal prompts, environmental markers.

**Visual Scanning Training (VST)** and **sensory stimulation** (Luaute et al. 2006; Polanowska et al. 2009). VST involves a behavioural compensatory mechanism, is progressive and based on the principles of “anchoring, pacing, density and feedback”. Visual anchors involving visual cues such as a red line are located on the left part of the page and the person is asked to look at these before commencing the exercises. In order to enhance visual exploration to the left, a scanning board, with a small visual target driven from one edge to the other may be used. Computerised scanning targets may also be used. The sensory stimulation involves electrostimulation using a TENS unit (30 min sessions) and needs to be combined with training therapy.

**Prism adaptation** (Turton et al. 2010). For example repeated pointing movements to targets across visual fields, using the right “unaffected” hand while wearing the prism glasses. The reported glasses were ten dioptr e prisms that shift the field of view 60 to the right and worn in optician’s trial frames. The frames may be fitted with felt blinkers to prevent interference from peripheral vision.

**Eye patching** (Luaute et al. 2006; Tsang et al. 2009). In the study by Tsang, people with left sided neglect were fitted with **right half-field eye-patching glasses**, and these were worn throughout the occupational therapy treatment sessions.

**Mental imagery** and **structured feedback** (Luaute et al. 2006). Use of mental imagery has been described as the use of visual and movement imagery exercises that encourage the person to explore their affected spatial fields with combinations of unilateral and bilateral tasks “imagined”. Supplying feedback has been reported in varying ways – from clear feedback about the impact of “missed” stimuli in the affected space through to balancing rods where the rod fails to be balanced if the person doesn’t find the central bisection point on the balancing finger or support.


Considerations

Wholistic approach to monitor/address neglect:

- Considerations around culturally and linguistically diverse issues
- Impact of deficits on activity (function) and participation (roles in life), particularly around safety
- Education around the neglect issues and needs to all concerned
- Aphasia-friendly information
- Mood and emotional status
- Contributing impairments (behavioural, sensory, motor, speech and language)

References


