Occupational Therapy's Role in Addressing Vision Impairments Post-Stroke

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BACKGROUND

- Each year, approximately 795,000 individuals in the United States experience a stroke with residual visual deficits varying from 30-92%.[3]
- Most common visual impairment is visual field loss, however survivors may also experience impairments in oculomotor control and visual perceptual skills.[1] In addition, stroke survivors commonly have coexisting age-related vision problems. [8]
- Visual problems can have an impact on, "functional ability, quality of life, participation in rehabilitation, and discharge destination".[8] Visual impairments increase risk of falls and fractures.[2, 7, 9]
- Optometrists and ophthalmologists are experts in vision, however they are commonly not core members of the rehabilitation team.[8] Occupational therapists are most likely to identify patients with potential visual concerns through assessment of everyday activities.[2]

PROGRAM DETAILS

- The inpatient rehabilitation vision tool-kit was created in order to provide therapists with evidence-based evaluations and interventions to appropriately and efficiently screen for visual and visual perceptual impairments in adults post-stroke.
- The tool-kit includes evaluation materials as well as intervention ideas to address specific impairments.
- Functional implications of vision impairments are outlined throughout the tool-kit.
- Suggested referrals should be made as appropriate to ophthalmologists/optometrists in order to maximize treatment outcomes.

FOCUSED QUESTION

- What are effective occupational therapy vision evaluations and interventions, to improve occupational performance and safety of adults' post-stroke?

METHODS

Identification:

- Electronic Databases searches: Cochrane Library, CINAHL, PsychINFO, ERIC, Academic Search Premiere, JAMA

Screening:

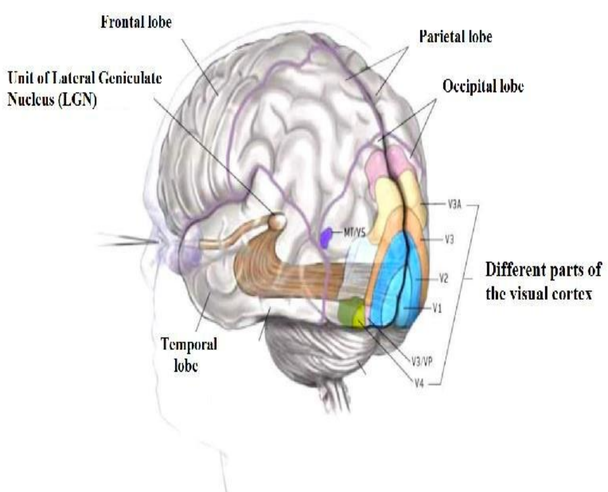
- Titles/abstracts screened (n = 150)
- Exclusion criteria (n = 130): studies completed before 2010, level III-V studies, qualitative studies

Eligibility:

- Full-text articles assessed for eligibility (n = 20)
- Full-text articles excluded (n = 16): studies completed before 2010, level III-V studies, qualitative studies, omitted key words and phrases as follows: stroke, adult, vision, neglect, hemianopsia, hemi-inattention, unilateral spatial neglect, occupational performance, activities of daily living, occupational therapy

Included:

- Studies assessing vision impairments in adults' post-stroke (n = 4)
  - Studies included from 2010-2020, level I studies (meta-analyses or randomized controlled trials), and included key words as follows: stroke, adult, vision, neglect, hemianopsia, hemi-inattention, unilateral spatial neglect, occupational performance, activities of daily living, occupational therapy



RESULTS

Evaluation:

- Currently, there are no best practice recommendations for specific assessments to assess visual impairments, due to insufficient evidence to decide which assessment or screening items are most effective.[3, 9]
- Oculomotor skills, visual field deficits, and visual perceptual deficits are most common after a stroke, therefore should be screened.[1]
- Visual fields are commonly evaluated through confrontation testing, however automated perimetry may be more accurate.[1]
- In the reviewed literature, cancellation tests were commonly mentioned to assess visual search patterns.[1, 6, 10] Line bisection tasks were also included to screen for unilateral spatial neglect.[1, 10]

Interventions for Oculomotor Skills:

- Eye and visual function may be improved through use of lenses, prisms, filters, and computer-based programs to improve eye movement control, eye focusing, and coordination.[1]
  - Evidence supports use of convergence training, however should be completed in conjunction w/ an O.D.[1]
  - Difficult to further assess computer-based programs as each are different.[1]
  - Behavioral optometry does not have the highest levels of evidence.[1]

Interventions for Hemianopsia:

- Visual scanning therapy yields more benefits for people with hemianopia (compared to individuals with neglect).[5] Activity-based interventions produce a positive effect for individuals with hemianopia, resulting in improved visual search.[5]
- Compensatory training strategies for people with visual field deficits include saccadic eye movement training, training in visual search strategies, and ADL training. Shown to have a beneficial effect on quality of life, however low quality of evidence.[9]

Interventions for Hemi-Inattention/Unilateral Spatial Neglect:

- Evidence supports visual scanning training, prism adaptation, and mental imagery. Few studies have assessed the relationship of these skills with ADL performance.[1]
- Smooth pursuit training has been shown to be superior to standard visual scanning and resulted in improved ADL performance.[5]

BOTTOM LINE FOR OT

- Because of the prevalence of strokes in adults, occupational therapists commonly work with adults post-stoke in inpatient rehabilitation. Vision impairments are common with a variety of different infarcts, although they may not always be noticeable.
- Vision impairments have functional implications on adults while they are in inpatient rehabilitation, as well as influence patient independence and safety when discharged to the next level of care.
- Therefore, it is important for occupational therapists to appropriately assess and provide effective interventions in order to facilitate ADL and IADL independence, as well as to ensure safety.
- Occupational therapists are encouraged to refer and collaborate with optometrists and ophthalmologists in order to maximize the patient's independence and overall quality of life.

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