Vision Screenings for Stroke Survivors

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Background:
Rowe et al.1 showed in a Caucasians populations, post-stroke patients had associated visual impairments such as reduced vision, visual field loss (e.g. homonymous hemianopia and quadrantanopia), ocular motility abnormalities and perceptual deficits (e.g. visual neglect).

Vision contributes to approximately 80% of perception (based on neurological structure). Hence comprised vision has devastating effects on a patient’s stroke rehabilitation, functional independence and quality of life 2. However, many visual deficits are unrecognized or neglected, so very little management or vision rehabilitation is provided. To minimize the potential impact to stroke rehabilitation, early recognition of visual problems in stroke survivors is essential.

Objectives:
➢ To study the prevalence and characteristics of ocular deficits in stroke survivors in Hong Kong Chinese population at in-patient and out-patient stroke rehabilitation clinics.

Participants:
1) Tung Wah Hospital (TWH, Hong Kong West Cluster)
   ➢ Out-patient clinic from Jul-2010 to May-2011
   ➢ In line with the patients’ scheduled visit with neurologists
   ➢ Patients were randomly selected based on medical status
2) Kowloon Hospital (KH, Kowloon Central Cluster)
   ➢ In-patient clinic from Jul-2011 to Mar-2012
   ➢ Patients were screened by in-house occupational therapists
   * Exclusion: significant problems in general health and Mini-Mental State Examination (MMSE) score < 18

Results:
➢ 102 post-stroke patients were recruited (63.1 ± 12.6 years) from TWH and KH from 2010 to 2012.
➢ 84 recruited patients had their first stroke with onset ranged from 1.5 months to 17.4 years and higher incidences of stroke affecting the left sides than right sides (Table 2)
➢ 33.3% participants did not have eye examination before, while 22.6% participants’ last eye examination was > 3 years ago
➢ 80.2% participants reported having clear vision

References:

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Assessments (Table 1):

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Table 1. Details of demographic, visual, ocular health and perception assessments.

Discussion:
➢ Estimated prevalence of visual impairment in this vision screening study was 14.3% (distance VA < 0.50 logMAR - the low vision criteria by WHO3), which was lower than the reported prevalence in Caucasian populations (e.g. 49.0% in UK post-stroke population)
➢ Although most patients reported having clear vision, 23.5% and 54.9% participants had unrecognized deficits in visual field and binocular vision
➢ Undetected or neglecting vision problems have devastating effect on stroke rehabilitation and functional independence 4. Thus vision screenings and comprehensive eye examination should be promoted among stroke patients.

Conclusion:
Vision screening allows early recognition of vision problems. For patients with diagnosed vision deficits, they should be referred to optometrists and other specialists for comprehensive examination and appropriate vision rehabilitation.

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➢ Optometry student helpers participated in the screening program.
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Prevalence of ocular diseases: 32.6% participants had at least one external ocular problems (mainly conjunctival degeneration) 62.5% had mild to moderate cataract 7.1% participants had at least one internal ocular problem (mainly macular anomaly)

Vision assessments Findings
Distance VA (better eye) (logMAR) 0.26 ± 0.27
Near VA (better eye) (logMAR) 0.40 ± 0.24
Contrast sensitivity (log) 1.92 ± 0.44
Near Point of Convergence (cm) 12.5 ± 10.8
Stereopsis (sec of arc) 106.8 ± 115.1
Ocular motility abnormality 13.7%
Visual field defect (any one eye) 23.5%
Intraocular pressure (mmHg) 14.66 ± 3.66
Visual neglect 6.9%

Table 3. Summary of findings in visual assessments

Prevalence of visual deficits (Table 3):
➢ 14.3% participants were visually impaired with distance VA in better eye (worse than 0.50 logMAR), which is based on the criteria by World Health Organization, WHO3
➢ 23.5% participants had VF defect in at least one eye (quadranopia, hemianopia and undefined types)
➢ 4% and 10.8% participants had strabismus (mainly exotropia)

Table 2. Summary of demographic information on stroke