

Correctable visual impairment in stroke rehabilitation patients

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Abstract

Background: after stroke, visual impairment may exacerbate the impact of other impairments on overall disability and negatively influence rehabilitation.

Objective: to examine the visual status of patients after stroke and determine whether this can be improved by simple interventions.

Design: prospective study.

Setting: stroke rehabilitation unit in a Belfast teaching hospital.

Subjects: 77 consecutive patients admitted for rehabilitation after acute stroke.

Methods: full optometric and ophthalmic assessment within 2 weeks of admission.

Results: of 70 patients with glasses, 19 did not have their glasses in hospital before prompting and 18 had glasses in unacceptable condition. Twenty patients had impaired visual acuity (6/12 or worse) with existing glasses (if helpful); 11 of these improved to better than 6/12 with refractive correction.

Conclusions: stroke professionals need to enquire about patients' spectacles and assess their condition. Patients with reduced visual acuity in the absence of significant non-refractive disease should be referred to an optometrist: in this series 14% of patients had visual impairment which benefited from refractive correction.

Keywords: cerebrovascular disorders, eyeglasses, rehabilitation, vision, vision tests

Introduction

Reduced visual acuity is common in older people [1] and is associated with depression, decreased self-sufficiency in activities of daily living and increased risk of falls [2, 3]. In addition, visual dysfunction exacerbates the impact of other impairments on overall disability [4]. After stroke, patients may have a number of motor and sensory abnormalities [5]. Visual impairment in these patients may not only hinder rehabilitation, but also worsen overall functional performance.

The aim of this study was to examine the visual status of a cohort of stroke rehabilitation patients and determine to what extent visual function may be improved by simple interventions (such as corrective refraction) that would be applicable early in the rehabilitative process.

Methods

Over 8 months, the visual status of 77 consecutive

stroke patients was assessed by an optometrist and ophthalmologist within 2 weeks of admission to a stroke rehabilitation unit. Optometric assessment included examination of spectacles and measurement of visual acuity before and after refractive correction. We used single letter/symbol charts for those unable to read more complex Snellen or Bailey Lovie charts. Patients unable to co-operate with the initial examination were reviewed within 2 weeks.

Ophthalmic assessment included ocular movements, visual fields and intraocular pressures. Anterior and posterior segments were examined after pupillary dilatation using a combination of slit lamp biomicroscopy and direct and indirect ophthalmoscopy. Cataract was considered to be important if the patient's best corrected visual acuity was worse than 6/12 and there was no other ophthalmic disease to account for the reduced acuity [1].

The study was approved by the ethics committee of the Queen's University of Belfast and all subjects gave written or verbal informed consent.

Table 1. Best visual acuity (VA) in 77 stroke rehabilitation patients before and after refraction

Best VA	Before refraction (with glasses if available) ^a	After refraction (with corrective lenses if required)
6/4 to >6/12	47	55
6/12 to >6/24	12	7
6/24 to >6/60	5	0
6/60 to >3/60	1	1
3/60 or worse	1	1
Counting fingers	1	1
Unable to record	10	12

^aExcept for patients who had better visual acuity without their glasses. In five patients, measured VA deteriorated with corrective lenses: two with VA 6/4 to >6/12 deteriorated to 6/12 to >6/24, one with VA 6/24 to >6/60 deteriorated to 6/60 to >3/60, one with VA 6/4 to >6/12 and one with VA 6/60 to >3/60 became unable to record.

Results

The study group comprised 41 men and 36 women, aged 72.8 ± 9.0 (mean \pm SD) years, who had been admitted to the stroke rehabilitation unit 15.5 ± 14.7 days after the onset of their stroke. Mean Barthel score was 9.7 ± 6.2 (range 0–20, low scores reflecting high dependency). Seventy patients had previously been prescribed 89 pairs of glasses (including near, distance and bifocal). Nineteen patients did not have their distance and/or reading glasses in hospital. After prompting, 67 patients presented 82 pairs of spectacles for assessment. Of these, 22 (belonging to 18 patients) were deemed unacceptably dirty, scratched or damaged for visual purposes. It was possible to measure visual acuity in 67 of the 77 patients (Table 1). Using existing glasses, if available and helpful, 20 of the 67 patients had impaired visual acuity (6/12 or worse). With updated refractive correction, 11 of these 20 improved to better than 6/12.

Two patients had diplopia associated with third nerve palsy, one of whom showed marked improvement after temporary occlusion of a spectacle lens. We detected one or more intraocular abnormality in 23 patients as follows: macular degeneration (eight), diabetic retinopathy (seven), clinically significant cataract (10) and raised intraocular pressure (one). We detected visual field defects, including 11 homonymous hemianopias, in 15 patients.

Discussion

Visual impairment in older people has a negative influence on overall functional status [2–4]. After

stroke, it is therefore desirable that visual impairment is promptly identified and treated. In this series 25% of stroke patients did not have their spectacles available and 27% of the pairs of spectacles eventually examined were dirty and/or damaged. We found visual impairment in 26% of cases; over half of these were corrected by refraction.

These results suggest that hospital staff need to enquire about stroke patients' spectacles and assess their condition. Measurement of visual acuity should be attempted in all stroke patients, and those with reduced visual acuity (in the absence of non-refractive disease) should be referred to a specialist optometrist to benefit from refractive correction.

Key points

- After stroke, poor vision may exacerbate the effects of other impairments on overall disability.
- In this series, 25% of stroke rehabilitation patients did not have their glasses in hospital and 23% had glasses which were unacceptably dirty, scratched or damaged.
- With existing glasses, 25% of patients had visual impairment (visual acuity 6/12 or worse): over half of these benefited from refractive correction.
- Professionals should routinely enquire about patients' glasses and inspect their condition.
- Visual acuity should be measured in all patients after stroke. Patients with visual impairment, in the absence of non-refractive disease, should be referred for refractive correction.

Acknowledgements

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