13 Vision

Recommendations

Assessment

- Use hospitalisation as an opportunity to screen systematically for visual problems that can have an effect both in the hospital setting and after discharge.
- For a rough estimate of the patient's visual function, assess their ability to read a standard eye chart (eg a Snellen chart) or to recognise an everyday object (eg pen, key, watch) from a distance of two metres.

Intervention

- As part of a multidisciplinary intervention for reducing falls in hospitals, provide adequate lighting, contrast and other environmental factors to help maximise visual clues; for example, prevent falls by using luminous commode seats, luminous toilet signs and night sensor lights. (Level III-3)[43]
- Where a previously undiagnosed visual problem is identified, refer the patient to an optometrist, orthoptist or ophthalmologist for further evaluation (this also forms part of discharge planning). (Level II)[37]
- When correcting other visual impairment (eg prescription of new glasses), explain to the patient and their carers that extra care is needed while the patient gets used to the new visual information. (Level II-*)[249]
- Advise patients with a history of falls or an increased risk of falls to avoid bifocals or multifocals and to use single-lens distance glasses when walking — especially when negotiating steps or walking in unfamiliar surroundings. (Level III-2-*)[250]
- As part of good discharge planning, make sure that older people with cataracts have cataract surgery as soon as practicable. (Level II-*)[251,252]

Note: there have not been enough studies to form strong, evidence based recommendations about correcting visual impairment to prevent falls in any setting (community, hospital, residential aged care facility), particularly when used as single interventions. However, considerable research has linked falls with visual impairment in the community setting, and these results may also apply to the hospital setting.

Good practice points

- If a patient uses spectacles, make sure that they wear them, and that they are clean (use a soft, clean cloth), unscratched and fitted correctly. If the patient has a pair of glasses for reading and a pair for distance, make sure they are labelled accordingly, and that they wear distance glasses when mobilising.
- Encourage patients with impaired vision to seek help when moving away from their immediate bed surrounds.

13.1 Background and evidence

Vision plays a major role in falls risk in the community setting, but there is limited research on specific visual interventions for preventing falls in hospitals. A systematic review[71] identified two studies using crude assessments of vision that reported visual impairment as an independent risk factor for falls[69] and in-hospital hip fracture.[115]

A study indicated that the prevalence of visual impairment is high (45%) in hospital inpatients, with cataracts and refractive errors being the main causes of visual impairment.[253] Detection and specialist referral led to improved visual outcomes in only 2% of cases. The biggest predictor of nonattendance was being discharged before eye specialist review.

A 2004 Cochrane review found that there have not been enough studies to form evidence based recommendations about correcting visual impairment to prevent falls in any setting (community, hospital, residential aged care facility).[7] Furthermore, studies have shown that multidisciplinary interventions are the most effective for falls prevention; little evidence showed that single interventions are effective, indicating that interventions to improve vision should form part of a multidisciplinary approach to falls prevention.

Considerable research in the community setting has linked reduced vision (including visual acuity, as well as depth-of-field and contrast sensitivity) with an increased risk of falls or fractures. These findings may be applicable to the hospital setting and highly relevant to this high-risk group, given their higher rate of visual impairment and increased frailty. This chapter outlines interventions that can be considered good practice, despite limited data to evaluate their effectiveness when used in isolation.

Point of interest

Much of the information in this chapter is based on research in older people living in the community. In most cases, the findings and recommendations can be extrapolated to the hospital setting; however, recommendations should be followed with due caution.

13.1.1 Visual functions associated with increased fall risk

A retrospective observational study showed that the risk of multiple falls increases 2.6 times if visual acuity is worse than 6/7.5.[254] Similarly, a prospective observational study showed that visual acuity of 6/15 or worse almost doubles the risk of hip fracture, and this risk is greater with even lower visual acuity levels.[255] Other visual functions have also been associated with an increased risk of falling in prospective cohort studies. These visual functions include reduced contrast sensitivity,[205,256] poor depth perception (measured in the community setting)[205,257] and reduced visual field size.[254,258-261]

13.1.2 Eye diseases associated with an increased risk of falling

Visual changes resulting from cataracts (see Figure 13.2) are associated with increased postural instability[262] and falls risk in older people who live in the community.[263] People with glaucoma can present with a range of loss of peripheral visual fields (side vision), depending on disease severity, which can affect a person's postural stability[264] and their ability to detect obstacles and navigate through cluttered environments (see Figure 13.3).[259,265] Macular degeneration can cause loss of central vision, depending upon disease severity (see Figure 13.4) and is associated with impaired balance[266,267] and an increased risk of falls.[266]

Figure 13.1 shows normal vision, as a comparison.

Source: Vision 2020 Australia

Figure 13.1 Normal vision

Source: Vision 2020 Australia

Figure 13.2 Visual changes resulting from cataracts

Source: Vision 2020 Australia

Figure 13.3 Visual changes resulting from glaucoma

Source: Vision 2020 Australia

Figure 13.4 Visual changes resulting from macular degeneration