Testing the Effectiveness of a Vision Care Program on Falls, Fractures and Quality of Life

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Background

• Estimates indicate that 20-50% of older people have undetected reduced vision, most of which are correctable or treatable (Smeeth et al, 2003).
• Rates of eye disease and visual impairment among nursing home residents is 3.3 times greater than any other segment of the population (Morer, 1994).
• Vision plays an important role in balance, mobility, falls and cognition in older persons.
• Falls are a major source of death and injury in the elderly (Harwood et al, 2005).
• Hip fractures are the most common fracture, the most devastating and the most costly to the health care system to treat (Kannus & Khan, 2001).
• In Manitoba, of the $819 million per year spent on unintentional injuries, $335 million is related to falls with $164 million devoted to treating falls among the elderly (Papadimitropoulos et al., 1997)

Current Vision Care Guidelines

•Canada and Manitoba:
  • No specific guidelines
  • Vision has not been deemed a "medically necessary health service"
  • Lack of access and referral in the long term care setting

Objectives

• To identify prevalence of vision disorders.
• To test reliability and validity of the vision screening tool.
• To compare prevalence of falls, fractures, and various quality of life characteristics before and after treatment intervention.

Definitions

• Interventions: eye-specific vitamins, new eyeglass prescriptions, cataract surgery, eye drops, photodynamic therapy, avastin therapy, lighting improvements, and magnifiers
• Vision screening tool indicates:
  • Whether a person may benefit from a full eye exam from an optometrist, an ophthalmologist or general practitioner
  • Problems with vision that may be affecting day-to-day activities.
  • Detects vision loss caused from refractive errors, cataracts, macular degeneration, glaucoma and diabetic retinopathy
  • Vision Screening Tool: adapted from the Centre of Eye Research Australia/ WHO Vision Screening Tool

Study Design

• Convenience sample of residents 65 years and older in one long term care facility
• All nursing home residents who participated in a vision screening and intervention program at a long term care facility were approached
• Initial screening done by nurse
• Screening tool detects vision loss and provides the algorithm for appropriate referral to professional for diagnosis & treatment
• After screening by nurse, all residents were assessed by optometrist who was blinded to screening outcome
• Intervention was provided by the appropriate professional after optometrist assessment
• MDS data and other data from screening records were utilized to obtain data on prevalence of falls, fractures, changes in depression, social engagement, balance and quality of life

Sample Characteristics

• Sample Characteristics N=92
  • Female n=76 (82.6%)
  • Age Range = 63-102
  • Vision diagnosis at admission n= 18 (19.5%)
  • Wore glasses n=69 (75%)
  • No recorded data on last eye exam or if one had taken place n=70 (75%)
  • Fell in past 6 months n=19 (20%)

Findings

Reliability and Validity of Tool
• Screening by Nurse found 77 with vision impairment
• Optometrist identified 79 with vision impairment
  - Amount of agreement between nurse and optometrist: 97.5% agreement
• Nurse referred 52 for ophthalmology and 25 for optometry
• Optometrist identified 49 for ophthalmology and 28 for optometry
  - Strength of association between nurse and optometrist assessment: .799 (excellent)

Prevalence of vision impairment
• 74 did not have a vision impairment diagnosis at admission or in other words, only 18 had a diagnosis
• Upon screening, 72 were found with vision impairment

Results of those who had an intervention (n=17)
• Significant improvement in level of depression, social engagement, balance and quality of life
• No occurrences of falls or fractures
• No occurrences of critical incidents

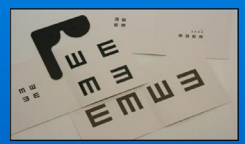
Results of those who received no intervention (n=29)
  ▪ Falls occurred in 18
  ▪ Critical incidents occurred in 8
  ▪ Types of fractures: hip 5, wrist 2, ribs 1
  ▪ Deaths: 3

Reasons for not receiving intervention:
  ▪ Mobility and transfer difficulties
  ▪ Ophthalmologist/Resident/Family stated intervention not needed or wanted:
    "don't use vision much in a nursing home".
    "won't make any difference".
  ▪ Deceased
  ▪ No reason given

2 predictors of falls post-intervention
  i) If had a previous fall (O.R.= 3.5, 1.06 – 11.2)
  ii) if refused or did not receive intervention (O.R.=3.09, 1.13 – 8.44)

Conclusion

• The screening tool was easily used by the nurses
• The screening tool was highly reliable and valid in detecting vision loss
• The screening tool had high validity in referring to appropriate professional
• Those who had intervention had no falls/fractures and displayed improvements in at least one or more MDS and quality of life assessment categories
• Those who had no intervention were at greater risk for falls and fractures than those who obtained intervention
• Vision care is a major gap in the care of older adults in nursing homes



• Project and research results: www.misericordia.mb.ca