

Effect of Vision and Hearing Impairments on Functional Status

Keller BK, Morton JL, Thomas VS, Potter JF. The effect of visual and hearing impairments on functional status. J Am Geriatr Soc 1999;47:1319-25.

Study Overview

Objective. To describe the prevalence of visual and auditory impairment in frail older persons and to evaluate the association between sensory impairments and overall functional status.

Design. Prospective patient evaluation combined with retrospective analysis of data.

Setting and participants. 576 consecutive outpatients observed at an academic medical center outpatient geriatric assessment clinic in Nebraska from 1986 to 1992 for whom data on both vision and hearing were available. Subjects were elderly, primarily female, and community-dwelling.

Main outcome measures. Visual acuity was measured by the Lighthouse Near Visual Acuity Test, and auditory acuity was evaluated with the whisper test. Functional status was determined by Lawton-Brody activities of daily living (ADL) and instrumental activities of daily living (IADL) scales. Comorbidity was classified by the Cumulative Illness Rating Scale (CIRS), and mental status was assessed by the Folstein Mini-Mental State Exam (MMSE).

Main results. Hearing impairment and visual impairment were prevalent in 64% and 18% of the cohort, respectively. Mean functional status scores were higher for those with visual acuity than for those with visual impairment: 20/24 versus 18/24 on ADL and 12/23 versus 8/23 on IADL ($P < 0.01$ for both comparisons). Similarly, functional status scores were higher for hearing-intact patients than for hearing-impaired patients: 21/24 versus 19/24 on ADL and 13/23 versus 11/23 on IADL ($P < 0.01$ for both comparisons). These positive effects of visual and hearing acuity on IADL score were independent of potentially confounding factors, such as comorbidities (CIRS) and mental status (MMSE). The positive effect of visual acuity on ADL was statistically independent of mental status and comorbid illness, but the effect of hearing acuity on ADL score was not. Dual sensory loss was associated with significantly greater decrease in function compared with single sensory loss.

Conclusion

Visual and hearing impairment are common among older community-dwelling outpatients. Functional status is reduced among patients with these sensory impairments.

Commentary

Visual impairment is related to increased morbidity (ie, physical disability and depression) and increased levels of health care utilization and assistance with functioning [1,2]. Hearing loss is associated with isolation, depression, and dementia [3,4]. The current study shows that the relationship between visual and hearing impairment and functional status is independent of other factors that reduce functional status. This finding is important because it identifies 2 areas where corrective action can improve a wide variety of clinical and quality-of-life outcomes.

Applications for Clinical Practice

Correcting hearing and visual impairments can improve the functional status and quality of life of frail, older persons, help maintain their independence in the community, and reduce their risk for physical disability. In many cases, either eyeglasses and/or hearing aids are sufficient to correct the impairments. The financial costs of these actions are rather modest given the expected improvements in clinical, quality-of-life, and economic outcomes. Ensuring proper diagnosis of sensory impairments is the necessary first step.

References

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