Emergency Department Visits Without Hospitalization Are Associated With Functional Decline in Older Persons

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Study objective: Among older persons, disability and functional decline are associated with increased mortality, institutionalization, and costs. The aim of the study was to determine whether illnesses and injuries leading to an emergency department (ED) visit but not hospitalization are associated with functional decline among community-living older persons.

Methods: From a cohort of 754 community-living older persons who have been followed with monthly interviews for up to 14 years, we matched 813 ED visits without hospitalization (ED only) to 813 observations without an ED visit or hospitalization (control). We compared the course of disability during the following 6 months between the 2 matched groups. To establish a frame of reference, we also compared the ED-only group with an unmatched group who were hospitalized after an ED visit (ED-hospitalized). Disability scores (range 0 [lowest] to 13 [highest]) were compared using generalized linear models adjusted for relevant covariates. Admission to a nursing home and mortality were evaluated as secondary outcomes.

Results: The ED-only and control groups were well matched. For both groups, the mean age was 84 years, and 69% were women. The baseline disability scores were 3.4 and 3.6 in the ED-only and control groups, respectively. During the 6-month follow-up period, the ED-only group had significantly higher disability scores than the control group, with an adjusted risk ratio of 1.14 (95% confidence interval [CI] 1.09 to 1.19). Compared with participants in the ED-only group, those who were hospitalized after an ED visit had disability scores that were significantly higher (risk ratio 1.17; 95% CI 1.12 to 1.22). Both nursing home admissions (hazard ratio 3.11; 95% CI 2.05 to 4.72) and mortality (hazard ratio 1.93; 95% CI 1.07 to 3.49) were higher in the ED-only group versus control group during the 6-month follow-up period.

Conclusion: Although not as debilitating as an acute hospitalization, illnesses and injuries leading to an ED visit without hospitalization were associated with a clinically meaningful decline in functional status during the following 6 months, suggesting that the period after an ED visit represents a vulnerable time for community-living older persons. [Ann Emerg Med. 2016;■:1-8.]

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INTRODUCTION

Background and Importance

Patients aged 65 years or older account for more than 15% of all emergency department (ED) visits each year in the United States,[1] and most of these patients are discharged home.[2] Among older persons, disability and functional decline are associated with increased mortality, institutionalization, and costs.[3-5] The estimated additional cost of medical and long-term care for newly disabled older persons in the United States is $26 billion per year.[6]

Previous work has shown that illnesses and injuries leading to hospitalization are associated with functional decline.[4,7-9] Prior studies have also suggested that older patients discharged from the ED may experience some functional decline, but these studies were limited by the absence of suitable comparison groups and by retrospective reports of preillness function.[10-16]

Goals of This Investigation

The objective of this study was to evaluate the burden of disability during a 6-month period in older persons who were discharged from the ED (ED only) by comparing them with a matched control group (control) and with a group that was admitted to the ED and hospitalized (ED-hospitalized). We hypothesized that older persons who visited the ED and were discharged would experience a

Editor's Capsule Summary

What is already known on this topic

Functional decline occurs in some older adults who are discharged home after an emergency department (ED) evaluation.

What question this study addressed

Do disability, nursing home use, and mortality differ for older patients evaluated in and discharged from an ED compared with that for matched control patients who did not make an ED visit?

What this study adds to our knowledge

Among community-dwelling adults aged 70 years and older, ED visits without hospitalization (n=813) were associated with greater disability, higher nursing home use, and increased morality during the following 6 months compared with periods without ED visits for otherwise similar individuals.

How this is relevant to clinical practice

Older adults who are evaluated in the ED but are not hospitalized are at risk for adverse health outcomes; interventions to improve ED and post-ED care for these patients may be warranted.

greater burden of disability during the following 6 months compared with those who did not visit the ED, but a lower burden of disability compared with those who were hospitalized. Admission to a nursing home and mortality were evaluated as secondary outcomes.

MATERIALS AND METHODS

Study Design and Setting

This study is part of the Yale Precipitating Events Project, an ongoing prospective, longitudinal study of 754 initially nondisabled, community-living persons aged 70 years or older. The Precipitating Events Project was designed to elucidate the epidemiology of disability, with the goal of informing the development of effective interventions to maintain and restore independent function. Methods of this longitudinal study have been described in detail elsewhere.[8,17,18] Briefly, the cohort was assembled between March 1998 and October 1999 from a computerized list of 3,157 age-eligible members of a large health plan in greater New Haven. Eligibility was determined during a screening telephone interview and was confirmed during an in-home assessment. Of the eligible members, 75.2% agreed to participate in the project, and persons who declined to participate did not significantly differ in age or sex from those who were enrolled. The Yale Human Investigation Committee approved the study protocol, and all participants provided informed consent.

Data Collection and Processing

From 1998 to 2012, participants completed comprehensive, home-based assessments at 18-month intervals and were interviewed monthly by telephone to reassess their functional status, ascertain intervening illnesses and injuries leading to ED visits and hospitalizations, and identify nursing home admissions and deaths. For participants with significant cognitive impairment, a proxy informant was interviewed, using a rigorous protocol with demonstrated reliability and validity, as described elsewhere.[19] During the comprehensive assessments, data were collected on demographic characteristics, chronic conditions, body mass index, cognitive impairment, depressive symptoms, and physical frailty.

Age was measured in years at the time of the index ED visit. Nine self-reported, physician-diagnosed chronic conditions were assessed: hypertension, myocardial infarction, congestive heart failure, stroke, diabetes, fractures, arthritis, chronic lung disease, and cancer (excluding minor skin cancers). Cognitive impairment was defined as a score less than 24 on the Folstein Mini-Mental State Examination.[20] Depressive symptoms were defined as a score greater than or equal to 20 on the Center for Epidemiological Studies–Depression scale.[21] Body mass index was assessed as self-reported weight in kilograms divided by height in meters squared.[22] Physical frailty was defined on the basis of slow gait speed, as previously described.[23]

Complete details about the assessment of disability are provided elsewhere.[17-19,24] Briefly, during the monthly interviews, participants were asked, "At the present time, do you need help from another person to [complete the task]?" for each of the 4 basic activities (bathing, dressing, walking across a room, and transferring from a chair), 5 instrumental activities (shopping, housework, meal preparation, receiving medications, and managing finances), and 3 mobility activities (walk one quarter mile [0.40 km], climb a flight of stairs, and lift and carry 10 pounds [4.5 kg]). For each of these 12 activities, disability was defined as the need for personal assistance or being unable to perform the activity. Participants were also asked about a fourth mobility activity, "Have you driven a car during the past month?" Participants who responded no were deemed to have stopped driving. To maintain consistency with the other activities, these participants were