Predictors of Elderly Hospital Length of Stay in Ain Shams University Hospitals

Thesis

Submitted for Partial Fulfillment of
Medical Doctorate in Geriatrics and Gerontology

By

Sherine Mohamed Hassan El Banouby
M.Sc

Supervised by

Professor/Ahmed Kamel Mortagy
Professor of Geriatrics and Gerontology
Faculty of Medicine – Ain Shams University

Doctor/Sarah Ahmed Hamza
Assistant Professor of Geriatrics and Gerontology
Faculty of Medicine – Ain Shams University

Doctor/Samia Ahmed Abdel Rahman
Lecturer of Geriatrics and Gerontology
Faculty of Medicine – Ain Shams University

Faculty of Medicine
Ain Shams University
2013

List of Contents

List of Abbreviations

ACE : Acute Care of Elderly

ADL : Activities of daily living

ADR : Adverse drug reaction

ANOVA : One way Analysis of variance

CGA : Comprehensive geriatric assessment

GDS : Geriatric Depression Scale

IADL : Instrumental activities of daily living

LOS : Length of stay

MMSE : Mini-Mental State Exam

MNA : Mini Nutritional Assessment

SD : Standard deviation

SPSS : Statistical package for social science

List of Tables

List of Tables *(Cont...)*

List of Figures

Acknowledgment

*First and foremost, I feel always indebted to **Allah**, the Most Merciful, Who gives me power to accomplish this work.*

*I would like to express my deepest appreciation and sincere gratitude to **Professor/Ahmed Kamel Mortagy,** Professor of Geriatrics and Gerontology, Faculty of Medicine – Ain Shams University, for his sincere help, constant encouragement, constructive criticism, and valuable guidance; I was truly honoured to work under his supervision.*

*I wish also to express my great gratitude and utmost appreciation to **Doctor/ Sarah Ahmed Hamza,** Assistant Professor of Geriatrics and Gerontology, Faculty of Medicine – Ain Shams University for her valuable suggestions and instructions during the progress of this work.*

*I feel deeply indebted to **Doctor/Samia Ahmed Abdel Rahman,** Lecturer of Geriatrics and Gerontology, Faculty of Medicine – Ain Shams University, for her active cooperation, deep concern, enthusiastic encouragement, the effort and time she has devoted to the fulfillment of this work.*

*I owe special thanks to **my Family** for their care, patience and continuous encouragement.*

Sherine Mohamed El-Banouby

Introduction

With the demographic and epidemiological changes, an increasing number of older subjects are admitted to hospital. These patients are at increased risk of adverse health outcomes, including functional decline, increased length of stay, institutionalization, geriatric syndromes (e.g. delirium), hospital readmissions and death ***(De Saint-Hubert et al., 2009).***

Increasing medical costs is an urgent issue, and one of its main contributing factors is length of stay (LOS) in hospital. Patients in geriatric wards generally have a long LOS and reducing that time is one way of reducing medical costs. In addition; long hospitalization may result in a decline of in the ability to perform activities of daily living (ADL) or contracting an infectious disease ***(Umegaki et al., 2003).***

The patient's disease alone or, in conjunction with social segregation, psychological factors, economic status, lack of medical awareness are considered risk factors for the development of a prolonged hospital stay, malnutrition, morbidity, mortality, and hospital costs ***(Waitzberg et al., 2001).***

Hospitalized elders are at risk for many iatrogenic complications, including delirium, malnutrition, pressure

ulcers, falls, depression, infection, and adverse drug events. These complications often are referred to as "hazards of hospitalization" and can result in marked functional decline, additional medical or surgical interventions, prolonged length of stay, placement in extended care facilities, or even death ***(Fernandez et al., 2008).***

Many hospitalized older people are discharged with ADL function that is worse than their baseline function. The oldest patients are at particularly high risk of poor functional outcomes because they are less likely to recover ADL function lost before admission and more likely to develop new functional deficits during hospitalization ***(Covinsky et al., 2003).***

Nutritional risk and malnutrition is associated with the length of stay in hospital ***(Allison, 2000)***. Also, cognitive and physical functions at admission are predictors of adverse outcomes and prolonged LOS ***(Fogel et al., 2000).***

Cognitive impairment has been demonstrated to determine functional recovery and potentially prolong LOS. It was observed that cognitively-impaired patients stayed longer in rehabilitation hospitals with a mean LOS of four more days, compared to patients without impaired cognition ***(Saxena et al., 2007).***

A comprehensive geriatric assessment (CGA) is a multidisciplinary diagnostic process that includes the

medical, psychosocial, and functional aspects of the subject, and it has shown to be effective in several aspects including improved functional status, less placements in nursing homes, and improved diagnostic accuracy ***(Ozawa, 1998).*** And also it has shown to reduce the length of the initial hospital stay and of subsequent readmissions ***(Nikolaus et al., 1999).***

Aim of the Work

The aim of this study is to identify the factors that are associated with prolonged hospital stay in elderly patients.

Hospital Care in Elderly

The primary challenge facing the clinician is that hospitalization for elderly persons is characterized by a complex set of benefits and burdens.

On the positive side, a stay in the hospital can facilitate intervention at a time of greatest need, appropriate and timely treatment of acute medical problems, and efficient evaluation of the health status of frail elderly patients ***(Callahan et al., 2002).***

Conversely, however, hospital admission can become a critical life event for older adults, precipitating medical, social, care-giving, legal, financial, ethical, and emotional crises, which can interfere not only with recovery but also with successful return to previous living arrangements. Almost one third of older adults admitted to acute medical-surgical units leave the hospital with a new impairment in their functional status ***(Hirsch et al., 1990).***

Admitting elderly patients to the hospital, supervising a successful course of treatment, and subsequently arranging for a safe and appropriate discharge placement can be complicated and time consuming ***(Benbassaf et al., 2000).***

It is imperative that every effort is made to ensure a positive outcome when an elderly patient is admitted to the acute care setting, because of the considerable risks and

burdens associated with hospitalization for elderly individuals ***(Nobilli et al., 2011).***

Because of demographic aging in U.S.A, the elderly form an increasing proportion of the hospital population; whereas in 1992 the over-65s accounted for 37% of hospitalized patients, today they represent about 50%. These patients are particularly vulnerable because of decreased physiological reserves, the high prevalence of chronic diseases and high comorbidity. Hospitalization is a sentinel event in this population as it represents a stress that may hasten the onset of dependence ***(kleinpell et al., 2008).***

Older people are predisposed to suffering bad health outcomes, including bothersome symptoms, diminished ability to perform desired tasks and roles, and death. For many older people, the years take a more global toll in reduced vitality and resilience. This reduction in vitality and resilience results in part from a gradual diminution in the maximum capacity of physiological systems: cardiovascular, pulmonary, renal, musculoskeletal, neurological, endocrine, and immune ***(Resnick et al., 1997).***

Recent studies of the growth of the hospital movement have confirmed that hospitals are taking care of an increasing percentage of hospitalized older adults ***(Kuo et al., 2009).***

Unfortunately, few hospitalist groups have specific programs or protocols to address the special needs of older patients ***(Wald et al., 2006).*** Hospitalists care for elderly patients daily, but few have specialized training in geriatric medicine. Elderly patients are at high risk of functional decline and iatrogenic complications during hospitalization. Other challenges in caring for this patient population include dosing medications safely, preventing delirium and accidental falls, and providing adequate pain control.

Ways to improve the care of the hospitalized elderly patient include the following: screening for geriatric syndromes such as delirium, assessing functional status and maintaining mobility, and implementation of interventions that have been shown to prevent delirium ***(Labella et al., 2011).***

Also, Acute Care of Elderly (ACE) units have been shown to reduce functional disability and discharge to long term care settings, with length of stay and hospital charges similar to that of usual care ***(Landefeld et al., 1993).***

Acute care of the elderly patient is a specialty area of practice. The elderly have a spectrum of needs including physiologic, psychosocial, functional, and financial needs that will alter their response to physiologic illness and the acute care experience in general. Acute care units specifically designed to meet the needs of elderly adults can have a dramatic impact on recovery from acute illness and long-term, postdischarge outcomes ***(Miller, 2002).***

Most hospitals do not have ACE units. Implementing some components of the intervention, such as early physical and occupational therapy, early discharge planning, early mobility, and adequate nutrition may reduce functional disability ***(Labella et al., 2011).***

Additionally, comprehensive geriatric assessment, a process of multifactorial health evaluation of the older patient, is an important part of geriatric medicine and has been shown to improve outcome in geriatric patients ***(Cohen et al., 2002).***

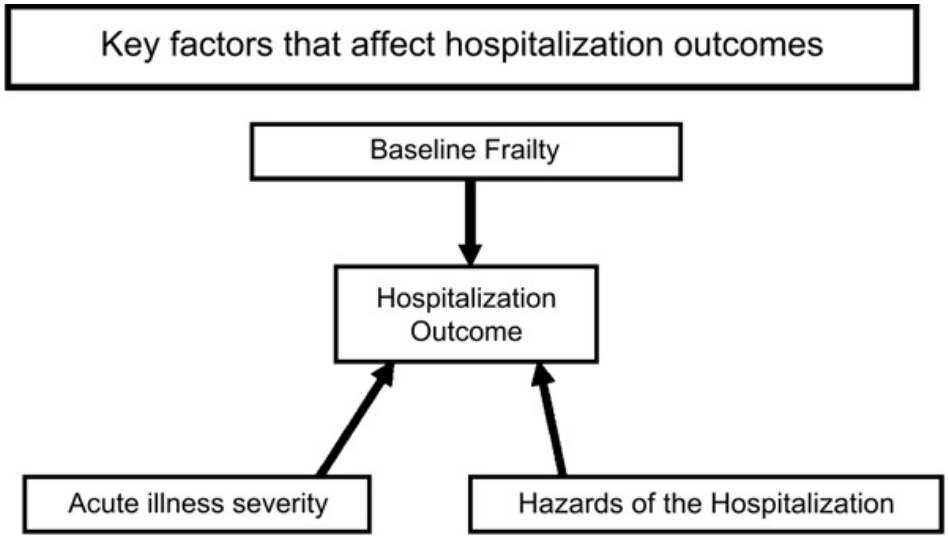

Figure (1): Key factors that affect hospitalization outcome ***(Podrazik et al., 2011).***

Elderly patients have a high prevalence of acute illness, and when compared with younger patients, hospitalizations of the elderly are more frequent, severe, and protracted ***(Burns et al., 1991)***. The older patient's

baseline vulnerability and risk of iatrogenic complications with hospitalization rate is as high as 29% to 38%. These factors together contribute to a greater frequency of hospitalization, greater length of stay, and higher risk of readmission ***(Podrazik et al., 2011).***

In 2000, adults age 65 and older had four times the number of hospitalizations of adults younger than age 65. Once in the hospital, older adults have longer lengths of stay, more diagnostic tests, and are more likely to decline in functional status ***(Callen et al., 2004)***.

Furthermore, if a hospitalization outcome is largely dependent on the impact of the acute illness, the patient's baseline vulnerability, and the hazards of the hospitalization process (including medical error) (Fig. 1), the elderly patient then is at a decided disadvantage in all three aspects.

High incidence of readmission:

Approximately 12% to 66% of elderly patients are readmitted to hospitals 1 to 6 months post discharge. Given the overall push to decrease length of stay in hospitals, these sicker older patients are being discharged at an earlier stage in their convalescence. The discharges are frequently premature and poorly structured, leading to a high incidence of readmission ***(Benbassaf et al., 2000).***

Physicians need to work with the health care team to identify patients whose clinical, functional, and social status