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COPD-Related ED Visits in North Carolina: Hospitalizations and Return Visits

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Objective

To investigate hospital admissions and short-term return visits resulting from chronic obstructive pulmonary disease (COPD)-related emergency department (ED) visits.

Introduction

COPD is a prevalent chronic disease among older adults; exacerbations often result in ED visits and subsequent hospital admissions.[1,2] A portion of such patients return to the ED within a few days or weeks.[3] In this study, we investigated patterns of hospital admissions and short-term return visits resulting from COPD-related ED visits.

Methods

We performed a population-based study of ED visits for COPD using state-wide surveillance data from NC DETECT[4], including all ED visits made by NC residents aged ≥45 years in 2008-2009. Visits were considered COPD-related if the first- or second-listed discharge diagnoses contained one of the following ICD-9-CM codes: 491.*, 492.*, 493.2*, 494.*, or 496.*. Hospital admissions were captured by ED disposition codes. If a patient had made another COPD-related ED visit within the prior 3 or 30 days, we defined the current visit as a 3-day or 30-day return visit. We compared the prevalence of hospitalization and 3- and 30-day return visits by age, sex, and payment method. We also described the disposition patterns for return visit pairs.

Results

There were 97,511 COPD-related ED visits made by adults age 45 and older in NC in 2008-2009, made by 64,568 individuals. HOSPITAL ADMISSIONS: Nearly half (46.3%) of all COPD-related ED visits resulted in hospital admission. Hospitalization prevalence increased with age, but there were no differences by gender. ED visits that were non-insured (self-pay) or paid by Medicare or Medicaid were less likely to lead to hospitalization than those with private insurance. RETURN VISITS: 1.6% (1607) of the COPD-related ED visits were categorized as 3-day return visits and 11.2% (10922) were considered 30-day return visits. There were no statistical differences by gender for 3-day returns, while 30-day returns were more likely to be made by men. Prevalence of return visits for both intervals initially increased with age compared to the 45-49 years age group, then decreased steadily after age 65. Visits that were non-insured or paid by Medicare or Medicaid were statistically more likely to be 3-day or 30-day returns than those paid by private insurance. DISPOSITION PATTERNS: We also examined the permutations of 1st and 2nd ED visit dispositions that make up these return visit pairs. While many return visits were discharged at both visits in the return visit pair, a substantial proportion were admitted at one or both visits. Surprisingly, in 8% of the 3-day return visit pairs, the patient was hospitalized at the 1st ED visit but yet still returned to the ED within 3 days; for the 30-day visit pairs, 37% returned despite the patient being admitted at the 1st visit.

Conclusions

This population-based study describes the short-term outcomes of a large number of COPD-related ED visits using a unique state-wide surveillance system. We found a high prevalence of hospital admissions and return ED visits, including many repeat hospitalizations. This study also demonstrates how surveillance data can be used for research on “acute on chronic” disease epidemiology.

Keywords

Chronic obstructive pulmonary disease; Chronic disease surveillance; Emergency department data; Hospitalizations; Return visits

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