THE WENNBERG INTERNATIONAL COLLABORATIVE POLICY CONFERENCE

Tracking Regional Variation in Healthcare
Berlin, June 4-5, 2015
Abstract

ZENTRALINSTITUT FÜR DIE KASSENÄRZTLICHE VERSORGUNG IN DEUTSCHLAND

(please save this form before submitting the abstract using your name as follows: surname-firstname.pdf)

Author(s) (please underline name of presenter at the conference)

Colais P(1), Di Martino M(1), Fusco D(1), Perucci CA(2), Davoli M(3).

Name of Institute/Company

1) Department of Epidemiology, Lazio Regional Health Service.

Name of Country

Italy.

E-mail-address:

p.colais@deplazio.it

Nature of the paper (check boxes)

☐ report on implementation project / experience / policy perspectives

☒ scientific research a) describing work in progress ☐ b) new methods ☐ c) presenting results ☒

Title

The effect of early surgery after hip fracture on 1-year mortality.

Background

Hip fracture injuries are identified as one of the most serious healthcare problems affecting older people. Many studies have explored the associations among patient characteristics, treatment processes, time to surgery and various outcomes in patients hospitalized for hip fracture. Some studies reported that preoperative delay might lead to an increase in mortality and adversely influence other clinical outcomes such as infection and pressure sores. A recent meta-analysis published in 2012 found that patients who underwent early surgery had significantly lower odds of death and pressure sores than those whose surgery was delayed (OR 0.74; 95% CI 0.67 to 0.81; OR 0.48, 95% CI, 0.38–0.60, respectively). However, optimal care is not always made available to all eligible patients. Therefore, the proportion of surgery within 48 hours after hip fracture is one of the most frequently used indicators of healthcare quality. Hospitals, and more generally healthcare systems, may be compared on the basis of this indicator, with the implicit assumption that higher proportions reflect more appropriate healtcare practice.

Objectives

The objective of the present study is to evaluate the difference in 1-year mortality after hip fracture between patients undergoing early surgery (within 2 days) and patients undergoing delayed surgery in Italy.

Methods

Observational, retrospective study based on the Hospital Information System (HIS). This cohort study included patients aged 65 years and older who were residing in Italy and were admitted to an acute care hospital for a hip fracture between 1 January 2007 and 31 December 2012. A multivariate Cox regression analysis was used to assess the effect of early surgery on the likelihood of 1-year mortality after hip fracture, adjusting for risk factors that could affect the outcome under study. Time-dependent effects were estimated for the entire population and by age groups. A bootstrap stepwise procedure that assigned an importance rank for the predictors in the logistic regression was implemented to identify the set of conditions that significantly predicted the risk of the outcome and optimized the trade-off between the goodness-of-fit of the final model and parsimony. The absolute number of deaths prevented by exposure to early surgery was calculated.

Results

We studied a total of 405,037 admissions for hip fracture. Patients who underwent surgery within 2 days had lower 1-year mortality compared to those who waited for surgery more than 2 days (Hazard Ratios (HR): 0.83; 95% CI: 0.82-0.85). There was a significant interaction between exposure to early surgery and age group ($p < 0.001$); HRs progressively increased with age, ranging from 0.68 (95% CI: 0.58-0.78) in the age group 65-69 up to 0.88 (95% CI: 0.83-0.92) in the age group 99-100. In regard to the population of patients who underwent surgery, the number of deaths prevented by exposure to early intervention was 5691 in the entire follow-up period and increased over time rising from 776 in 2007 to 1255 in 2012. In each age group, the beneficial effect of early surgery decreased from the first six-month follow-up period to the second six-month period.

Conclusion/Discussion/Policy Perspective

This study is the first to evaluate the association between time to surgery and 1-year mortality for all Italian elderly patients hospitalized for hip fracture. The study confirmed the previous reports on the association between delayed surgery and increased mortality and complication rates in elderly patients admitted for hip fracture. Our data support the notion that deviating from surgical guidelines in hip fracture is costly, in terms of both human life and excess hospital stay. Therefore, medical organizations should improve performance according to guidelines and use surgery for hip fracture as a quality improvement measure.

Literature

1) Simunovic N, Devereaux PJ, Sprague S, et al. (2010) Effect of early surgery after hip fracture on mortality and complications: systematic review and meta-analysis. CMAJ 182: 1609–1616.

2) Moja L, Piatti A, Pecoraro V, et al. Timing matters in hip fracture surgery: patients operated within 48 hours have better outcomes. A meta-analysis and