Actas Urol Esp. 2015;39(4):210–216

Actas Urológicas Españolas

www.elsevier.es/actasuro

ORIGINAL ARTICLE

Surgical site infections in patients who undergo radical cystectomy: Excess mortality, stay prolongation and hospital cost overruns☆

E. Gili-Ortiz[a,*], R. González-Guerrero[a], L. Béjar-Prado[b], J. López-Méndez[b,c], G. Ramírez-Ramírez[b,c]

[a] *Servicio de Anestesiología y Bloque Quirúrgico, Hospital Universitario Virgen Macarena, Sevilla, Spain*
[b] *Departamento de Medicina Preventiva y Salud Pública, Facultad de Medicina, Universidad de Sevilla, Sevilla, Spain*
[c] *Servicio de Medicina Preventiva y Salud Pública, Hospital Universitario Virgen Macarena, Sevilla, Spain*

Received 29 September 2014; accepted 3 November 2014
Available online 1 April 2015

KEYWORDS
Radical cystectomy;
Surgical site infection;
Mortality;
Hospital stay;
Costs

Abstract
Background: The aim of this study was to analyze the impact of surgical site infections (SSI) in patients who underwent radical cystectomy, in terms of excess hospital mortality, stay prolongation and cost overruns.
Material and methods: A retrospective observational study was conducted on a sample of patients who underwent radical cystectomy as recorded in the basic minimum data sets of 87 Spanish hospitals from 2008 to 2010.
Results: We studied 4377 patients who underwent radical cystectomy (3904 men and 473 women) of whom 849 (19.4%) experienced a SSI. The patients with SSI were predominantly men, elderly and had a higher prevalence of alcohol-related disorders and more number of comorbidities. The patients with SSI had significant excess mortality (125.6%), undue stay prolongation (17.8 days) and cost overruns (14,875.70 euros).
Conclusions: After controlling for demographic variables, hospital type, addiction disorders and comorbidities using multivariate pairing, the onset of SSI in patients who underwent radical cystectomy significantly increased the mortality, stay and cost. Certain preventive measures already established in previous studies could reduce the incidence of SSI and its healthcare and financial impact.

☆ Please cite this article as: Gili-Ortiz E, González-Guerrero R, Béjar-Prado L, López-Méndez J, Ramírez-Ramírez G. Infecciones de localización quirúrgica en los pacientes tratados con cistectomía radical: exceso de mortalidad, prolongación de estancias y sobrecostes hospitalarios. Actas Urol Esp. 2015;39:210–216.

* Corresponding author.
E-mail address: egiliort@gmail.com (E. Gili-Ortiz).

2173-5786/

PALABRAS CLAVE
Cistectomía radical;
Infección de localización quirúrgica;
Mortalidad;
Estancia hospitalaria;
Costes

Infecciones de localización quirúrgica en los pacientes tratados con cistectomía radical: exceso de mortalidad, prolongación de estancias y sobrecostes hospitalarios

Resumen

Introducción: El objetivo de este estudio es el análisis del impacto de las infecciones de localización quirúrgica (ILQ) en los pacientes tratados con cistectomía radical, en términos de exceso de mortalidad intrahospitalaria, prolongación de estancias y sobrecostes.

Material y métodos: Estudio observacional retrospectivo de una muestra de pacientes tratados con cistectomía radical recogidos en los conjuntos mínimos básicos de datos de 87 hospitales españoles durante el periodo 2008-2010.

Resultados: Se estudió a 4.377 pacientes tratados con cistectomía radical, 3.904 varones y 473 mujeres, de los cuales 849 (19.4%) experimentaron una ILQ. Los pacientes con ILQ fueron predominantemente varones, de mayor edad, con mayor prevalencia de trastornos asociados al consumo de alcohol y con más comorbilidades. Los pacientes con ILQ presentaron importantes excesos de mortalidad (125,6%), prolongación indebida de estancias (17,8 días) y sobrecostes (14.875,7 euros).

Conclusiones: Controlando mediante el emparejamiento multivariado las variables demográficas, el tipo de hospital, los trastornos adictivos y las comorbilidades, la aparición de ILQ en pacientes tratados con cistectomía radical aumenta significativamente la mortalidad, la duración de la estancia y su coste. Ciertas medidas preventivas ya consagradas en estudios previos podrían disminuir su incidencia y su impacto sanitario y económico.

Introduction

Radical cystectomy (RC) may have a high rate of postoperative complications and, according to various studies, it appears in 20–64% of operated patients, resulting in a in-hospital mortality of 2–6%.[1–5] Complications of RC may cause excess mortality, undue prolongation of hospital stays, and significant overruns.[6]

One of the most common complications of RC is infection of the surgical wound, generically called surgical site infection (SSI), which usually worsens the prognosis, prolongs hospital stay and, in some cases, produces unscheduled readmissions.[7–9] Despite the importance of this complication, we could not find any publication that has analyzed the impact of these infections in these patients in Spain in terms of attributable mortality, lengthening of stays, and excess costs.

Therefore, we studied this problem in 18-year-old patients or older admitted to a sample of 87 Spanish hospitals during the period 2008–2010, trying to control other confounding and interaction variables such as age, sex, type of hospital, addictions, and comorbidities. The aim of this study is to analyze the possible influence of these infections on mortality, longer stays, and excess costs among hospitalized patients undergoing RC.

Material and methods

Type of study, sample and participants

Retrospective observational study in a sample of Spanish hospitals.

For the sample to have national and regional representation, and taking into account the stratification of hospitals as rated by hospital groups according to their size and complexity of the Ministry of Health, Social Services, and Equality[10] multistage sampling was conducted in which 87 Spanish hospitals of all Spanish Autonomous Communities were selected.

From the written or digitized medical history information, the diagnoses of each patient and the procedures that are applied are encoded according to the rules of the 9th Revision of the International Classification of Diseases and Causes of Death (ICD9). The coding and entering of information in the database are carried out by specialized data logging personnel. These databases contain demographic information, dates of admission and discharge, type of admission, type of discharge, diagnostic codes for the primary cause and secondary diagnoses, external causes and procedures, using the ICD9 codes, and they are called basic minimum data set (BMDS). In these databases, diagnosis-related groups (DRGs) are also included and each hospital is ranked in a group according to their size and care complexity.[10] The analysis was restricted to patients that at the time of discharge were 18 or more.

Variables

We defined as cases of RC those with procedure code 57.71 of the ICD9 diagnosed with bladder cancer (ICD9 codes 188.0-188.9). Age was measured in years. As an indicator of comorbidity, the Charlson comorbidity index[11] was calculated using the ICD9 codes proposed by Quan et al. for the comorbidities of this index.[12] Other comorbidities that were analyzed were also calculated using the codes proposed by