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Original article

Postoperative Dehiscence of the Abdominal Wound and Its Impact on Excess Mortality, Hospital Stay and Costs☆

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ABSTRACT

Introduction: The objectives of this study were to investigate the relationship between several factors and the incidence of postoperative abdominal wall dehiscence (POAD), and to estimate the influence of POAD on in-hospital mortality, excess length of stay and costs.
Methods: Retrospective observational study of a sample of abdominal surgery patients from a minimal basic data set of 87 Spanish hospitals during 2008–2010.
Results: Among 323 894 admissions for abdominal surgery reviewed there were 2294 patients with POAD. Elderly patients, male, with non-elective admission, with alcohol, tobacco or drugs abuse, and with more comorbidities had higher incidence. POAD patients had an increase in in-hospital death (mortality excess of 107.5%), excess length of stay (15.6 days) and higher cost (14 327 euros).
Conclusions: Certain demographic and behavioural variables, and several comorbidities are associated with the incidence of POAD, and this complication shows an increase in in-hospital mortality, the length of hospital stay and costs. Preventive measures might decrease the incidence of POAD and its impact on health and extra-costs.

Dehiscencia de la laparotomía y su impacto en la mortalidad, la estancia y los costes hospitalarios

Palabras clave:
Dehiscencia laparotomía
Factores de riesgo

RESUMEN

Introducción: Los objetivos de este estudio fueron el análisis de los factores asociados a la incidencia de dehiscencia postoperatoria de la laparotomía (DPL) y el impacto de esta última en la mortalidad, las estancias y los costes hospitalarios.

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Mortalidad
Estancia hospitalaria
Costes

Métodos: Estudio observacional retrospectivo de una muestra de pacientes intervenidos mediante laparotomía recogidos en los conjuntos mínimos básicos de datos de 87 hospitales españoles durante el periodo 2008–2010.

Resultados: Se estudiaron 323.894 ingresos por cirugía abdominal, entre los cuales hubo 2.294 pacientes con DPL. Los pacientes de mayor edad, varones, con ingreso urgente, con trastornos por alcohol, tabaco y drogas, y con más comorbilidades presentaron mayor incidencia. Además, aquellos con DPL presentaron un incremento de mortalidad (107,5%), una estancia mas prolongada (15,6 días) y un exceso de costes (14.327 euros).

Conclusiones: Hay una asociación entre ciertas variables demográficas, conductuales y comorbilidades, y la incidencia de DPL, y esta complicación aumenta la mortalidad, la duración de la estancia y su coste. Medidas preventivas podrían disminuir su incidencia y su impacto sanitario y económico.

Introduction

Postoperative wound dehiscence (PWD) is a serious complication, with an incidence of 0.4%–3.5%,[1–8] which associates high rates of complications and mortality.[3–9] Despite the advances in anaesthesia and perioperative care, the incidence, morbidity and mortality associated remain stable, probably due to the increase in the prevalence of related risk factors among the surgical population.[5]

The Agency for Healthcare Research and Quality (AHRQ) includes the rate of postoperative dehiscence of the abdominal wall as one of the patient's safety markers,[10] which has also been adopted in other countries, such as Spain. This rate is calculated using databases of discharges from the hospital in the USA and the minimum sets of databases in Spain (CMBD in Spanish). Despite the relevance of this complication, we have not found any studies carried out on the impact of this specific marker by AHRQ on the morbidity and mortality and the health care and economic burden among patients with abdominal surgery.

Therefore, for the purposes of analysing the risk factors of PWD upon admission to the hospital, we have studied the issue in patients 18 years of age or older admitted using a sample of 87 Spanish hospitals during the period 2008–2010, trying to control other confounding and interaction variables such as age, gender, type of hospital, addictions and a considerable number of comorbidities. Similarly, another purpose of this study is to analyse the potential influence of this complication on mortality, the extension of stays and the excess costs among patients hospitalised for abdominal surgery.

Methods

Type of Study, Sample and Participants

Retrospective observational study in a sample of Spanish hospitals.

For the sample to be representative at a national and autonomic level, and taking into consideration the stratification of hospitals according the classification of groups of hospitals based on their size and complexity of the Ministry of Health,[11] a multistage sampling was performed, and 87 Spanish hospitals of all Spanish CCAAs were selected, which are listed in Appendix.

Based on this written or digitalised summary of the medical history, the diagnoses of each patient and the procedures applied are codified based on the rules of the 9th Revision of the International Classification of Diseases in the Causes of Death Lists (CIE9). The coding and entering of information into the database was carried out by specialists in data recording. These databases of discharges from the hospital or CMBD contain information on the hospital providing the care, demographic data of the patient (date of birth and gender), dates of admission and discharge, type of admission and type of discharge. For the diagnoses of the main cause and secondary diagnoses, external causes and procedures, the CIE9 codes are used. These databases also include groups related with the diagnosis (GRD) and each hospital is classified in a group based on its size and complexity of care.[11] The analysis was limited to patients who were 18 years of age or older on discharge.

Variables

Following the definition of the AHQR, cases of PWD were defined as those with procedure code 54.61 of the CIE9 (''Abdominal wall disruption closure [evisceration]''). Following the related criteria, cases with stays of less than 2 days, obstetric cases and cases among immunocompromised patients were excluded. All patients with abdominal surgery and no PWD who also met the criteria above were included as a comparison group. We used the CIE9 codes for the 386 abdominal and pelvic surgery procedures described by the AHRQ in its technical specifications.[10] The age was stratified into the following groups: 18–34, 35–44, 45–54, 55–64, 65–74, 75–84 and 85 years or over. A considerable group of comorbidities was identified (shown in Table 1) using the CIE9 codes proposed by Quan et al.[12] The CIE9 codes were used to define disorders caused by abuse of alcohol, tobacco and other drug addictions.[13]