Original article

Standard Outcome Indicators After Colon Cancer Resection. Creation of a Nomogram for Autoevaluation[☆]

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ABSTRACT

Introduction: Lately there has been an increasing interest in identifying quality standards in different pathologies, among them colon cancer due to its great prevalence. The main goal of this study is to define the quality standards of colon cancer surgery based on a large prospective national study dataset.

Methods: Data from the prospective national study ANACO were used. This study included a consecutive series of patients operated on for colon cancer in 52 Spanish hospitals (2011–2012). Centers with less than 30 patients were excluded. The present analysis finally included 42 centers (2975 patients). Based on the results obtained in 4 main indicators from each hospital (anastomotic leak, lymph-nodes found in the specimen, mortality and length of stay), a nomogram that allows the evaluation of the performance of each center was designed. Standard results for further 5 intraoperative and 5 postoperative quality indicators were also reported.

Results: Median of anastomotic leak and mortality rate was 8.5% (25th–75th percentiles 6.1%–12.4%) and 2.5% (25th–75th percentiles 0.6%–4.7%), respectively. Median number of

nodes found in the surgical specimen was 15.1 (25th–75th percentiles 18–14 nodes). Median length of postoperative stay was 7.7 days (25th–75th percentiles 6.9–9.2 days).

Based on these data, a nomogram for hospital audit was created.

Conclusions: Standard surgical results after colon cancer surgery were defined, creating a tool for auto-evaluation and allowing each center to identify areas for improvement in the surgical treatment of colon cancer.

Resultados quirúrgicos estándar tras resección oncológica de colon. Creación de un nomograma para la autoevaluación

R E S U M E N

Palabras clave:
Neoplasias de colon
Cirugía de colon
Evaluación de resultados
Indicadores de calidad
Estándares de referencia

Introducción: Existe un gran interés en los últimos años en identificar estándares de calidad en las distintas enfermedades, entre ellas, el cáncer de colon debido a su alta prevalencia. El objetivo del presente estudio es definir unos valores estándar de calidad en los resultados de la cirugía del cáncer de colon.

Métodos: Se han utilizado los datos del estudio prospectivo multicéntrico nacional «ANACO», que incluye pacientes con cáncer de colon intervenidos en 52 hospitales españoles (2011-2012). Para el presente análisis se han excluido los centros con menos de 30 pacientes y han quedado finalmente 42 hospitales (2.975 pacientes). Se presentan los valores de 4 indicadores de calidad principales a partir de los cuales se ha creado un nomograma que permite definir unos resultados estándar de la cirugía del cáncer de colon. Además se proporcionan los resultados estándares de otros 10 indicadores de calidad secundarios (5 intraoperatorios y 5 postoperatorios).

Resultados: La mediana de fuga anastomótica y de mortalidad de los 42 hospitales fue de 8,5% (percentiles 25-75: 6,1-12,4%) y de 2,5% (percentiles 25-75: 0,6-4,7%), respectivamente.

La mediana de ganglios aislados fue de 15,1 (percentiles 25-75: 18-14 ganglios). La mediana de estancia hospitalaria postoperatoria fue de 7,7 días (percentiles 25-75: 6,9-9,2 días).

Basándonos en estos resultados se ha construido un nomograma para la autoevaluación de los distintos hospitales.

Conclusiones: El presente análisis ha permitido definir unos resultados quirúrgicos estándar tras la resección del cáncer de colon y se ha creado un instrumento de autoevaluación para las distintas unidades, de tal forma que cada centro puede identificar posibles áreas de mejora en el tratamiento de esta enfermedad.

Introduction

Colorectal cancer is diagnosed in more than one million people per year worldwide, and it is the most frequently diagnosed cancer in Spain when both sexes are considered.[1,2] Surgery is the only curative treatment for colorectal cancer, although there has been great variability in the outcomes reported by different surgeons and hospitals. Increased knowledge and standardization of treatment, coupled with the prevalence of this disease, have led to greater interest in monitoring results.

There has recently been more research activity to identify quality indicators for different diseases. These indicators make it possible to measure the results of therapy for different diseases at different hospitals, including colon cancer, as reflected in recent publications.[3–5] However, once the quality indicators for each disease have been identified, it is necessary to define specific standard values for these indicators, based on everyday clinical practice.

The aim of the present study is to define the standard surgical outcomes following oncologic resection of colon cancer, based on data from a large national multicenter prospective study. In addition, to facilitate the self-assessment of each unit, we intend to create a nomogram based on the main outcome variables.

Methods

Data for the present analysis were used from the ANACO study, which is a prospective, observational, multicenter national study, whose main objective was to identify risk factors for anastomotic leakage after bowel resection for cancer.[6]

The inclusion of the different participating hospitals was voluntary, and there was no individual or institutional financial compensation for the study participants.

A total of 58 hospitals initiated the study, 6 of which were excluded because they did not include the patients consecutively, so the final total was 52 participating hospitals,