



Improving survival and local control in rectal cancer in Catalonia (Spain) in the context of centralisation: A full cycle audit assessment

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Abstract

Background: Rectal cancer surgery in Catalonia has been involved in a process of centralisation. We assessed the impact of this health policy strategy on quality of care and clinical results.

Methods: We compared patterns of care and clinical outcomes of all rectal cancer patients receiving radical surgery for the first time in public hospitals in two time periods, before (2005 and 2007) and after (2011–2012) centralisation, analysing indicators of care quality according to the regional clinical practice guidelines. Clinical outcomes at two years were also assessed.

Results: A total of 3780 patients were included. From 2005 to 2012, the proportion of patients treated surgically for the first time in centres whose annual surgical caseload was more than 11 increased from 84.0% to 90.4%. The rate of locoregional recurrence at two years fell

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from 4.5 to 3.06/100 person-years ($p = 0.005$). The crude mortality rate at three months, one and two years was reduced by 55%, 40% and 34% ($p < 0.001$).

Conclusion: Improvements in quality of care might be associated with the centralisation of surgery and with the selective focus effect derived from the process of auditing. Our results support the continuation of clinical auditing and surveillance of authorised centres.

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Keywords: Rectal cancer; Centralisation; Population based; Quality assessment; Clinical audit; Surgery

Introduction

Clinical management and outcomes of rectal cancer have improved significantly over the last decades, with increased overall and disease-free survival, and reduced locoregional recurrence (LR) rates.^{1–3} These changes have often been related to higher-caseload centres.⁴

Different strategies have been implemented internationally to improve the quality of rectal cancer care and clinical outcomes, including the implementation of clinical practice guidelines (CPGs) and the use of rectal cancer registries and clinical audits as practice tools for change. It is worth noting as well the role of EURECCA (European Registration of Cancer Care) in establishing European guidelines for rectal cancer care as well as a framework for clinical audit.¹ The Spanish Society of Surgery has also been active, implementing the Viking Project for rectal cancer since 2006. This has helped to decrease rates of local relapse across participating hospitals, in part due to the extensive training for specialists included in the programme.⁵ Meanwhile, experiences in Norway, Sweden, the Netherlands and the United Kingdom all involved reducing the number of providers delivering rectal cancer treatments.^{6–8}

In Catalonia (Spain), the 2010 population-based clinical audit of all rectal cancer patients surgically treated in regional public hospitals showed a significant variability in clinical practices and highlighted how high-volume centres were associated with higher adherence to CPGs and better clinical outcomes.⁹ Based on these results, in 2011 health authorities implemented a centralisation strategy for rectal cancer surgery in authorised hospitals. The aim of this study was to assess the impact of this health policy strategy on patterns of care and clinical outcomes.

Methods

We compared patterns of care and clinical outcomes of all rectal cancer patients receiving radical surgery for the first time in Catalanian public hospitals in two time periods, before (2005 and 2007) and after (2011–2012) centralisation, based on data retrieved by two clinical audits. The first clinical audit carried out in 2010 was a retrospective cohort study of all rectal cancer patients treated surgically in public hospitals in 2005 and 2007. It shed light on the negative impact of the wide scattering of specialised procedures on clinical outcomes in several providers. As a group, low-

volume providers were clearly performing worse than the other hospitals, and after 2010 they were invited by the health authorities to refer patients diagnosed with rectal cancer to higher-volume hospitals with better results.⁹ A specific regulation in 2012 formalised the centralisation of surgery in what was an important midway policy milestone, supported by maintenance of the full auditing cycle. A three-month run-in period followed the enactment of the regulation, a time frame in which the reconfiguration of services for the coordination of the whole rectal cancer pathway between hospitals was largely achieved. Between 2005–2007 and 2012, the number of hospitals that offered rectal cancer surgery dropped from 51 to 32. The proportion of patients receiving their first surgery in centres with over 11 surgical patients per year increased from 84.0% to 90.4%, while centres with an annual caseload over 40 increased from 37.5% to 52.8%. We conducted a second clinical audit, a retrospective cohort study as the first audit, in all patients who underwent primary surgery with a curative intent for rectal cancer at all Catalanian public hospitals in 2011–2012.

We selected these two periods because (i) they were sufficiently far apart to allow for a measurable change in adherence related to the centralisation process that began in early 2011, (ii) the target period allowed us to assess LR at two years after surgery, and (iii) the data was recent enough for clinical leaders to feel responsible for their own work. The methodology used for data retrieval was the same for both periods and has been described in detail elsewhere.⁹ Adherence to the recommended standard of care was assessed according to the regional clinical practice guidelines (CPGs).¹⁰ Patients shown on the medical records as having undergone surgery for primary rectal cancer with curative intent for the first time during 2005 and 2007 or 2011–2012 at any public hospital in Catalonia were included. Patients who had undergone surgery with palliative intent and patients not meeting inclusion criteria were excluded. Staging was based on the sixth (2005–2007) and seventh edition (2011–2012) of the TNM classification, by combining pre-treatment clinical and pathological data with the use of neoadjuvant treatment. Tumours were considered non-stageable when not enough data on T or N was identified. The American Society of Anaesthesiologists (ASA) physical status score was collected differently in the two audits: in the first, auditors could evaluate the ASA score even when it was unavailable

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