Original article

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Survival after elective surgery for colonic cancer in Denmark

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Abstract

Aim Total mesorectal excision (TME) has been shown to improve the outcome for patients with rectal cancer. In contrast, there are fewer data on complete mesocolic excision (CME) for colonic cancer.

Method Data from the National Colorectal Cancer Database were analysed. This includes about 95% of all patients with colorectal cancer in Denmark. Only patients having elective surgery for colonic cancer in the period 2001–2008 were included. Overall and relative survival analyses were carried out. The study period was divided into the periods 2001–2004 and 2005–2008.

Results 9149 patients were included for the final analysis. The overall 5-year survival rates were 0.65 in 2001–2004 and 0.66 in 2005–2008. The relative 5-year survival rates were also within 1% of each other. None of these comparisons was statistically significant.

Conclusion Survival following elective colon cancer surgery has been almost unchanged since 2001.

Keywords Colon cancer, survival, curative surgery, elective surgery, complete mesocolic excision.

What is new in this paper?
This paper describes the long-term results of elective colonic cancer surgery. It is based on a national colorectal cancer database and it is the first of its kind for colonic cancer surgery in Denmark. It shows that survival has not changed over the years of 2001–2008.

Introduction

Survival after radical surgery for rectal cancer has improved in Denmark [1]. This is mainly attributed to change in surgical technique through the implementation of TME. In contrast, survival after radical surgery for colon cancer has not improved significantly [2]. Factors influencing survival are numerous, one factor being surgical technique. One of the important parameters accepted as an indicator for the quality of colonic cancer surgery is the number of lymph nodes retrieved [3]. This leads to adequate staging and a guide to the selection of patients for adjuvant chemotherapy. Furthermore, the number of nodes retrieved is by itself a prognostic factor. In a study of adjuvant chemotherapy including stages II and III colonic cancers, the survival rates within an N (node) category were significantly higher where greater numbers of nodes were removed and examined [4]. Even the cancer-negative lymph node count is associated with survival [5].

The surgical technique described by Hohenberger *et al.* [6] named CME uses the principles of TME in colonic surgery. By consecutively applying this standardized dissection method and true central ligation of tumour-draining vessels, an improved cancer-specific survival from 82.1% to 89.1% and lower local recurrence rates have been achieved. Bokey *et al.* [7] have reported an improved cancer-specific survival from 66.4% to 76.6% by using a technique of dissecting along embryiological planes. West *et al.* [8,9] have compared the surgical results of CME with results of traditional dissection and found that the former leads to removal of a higher number of lymph nodes.

It is not yet clear whether or not this paradigm shift [10] will be implemented in Denmark. However, the encouraging results of CME make it logical for laparoscopic and open surgery [11]. In a study of laparoscopic colorectal surgery based on the National Colorectal Cancer Database, an increasing number of retrieved lymph nodes have been reported [12]. The median number increased from 11 between 2001 and 2005 to 15 in 2007 ($P = 0.001$).

Our purpose was to analyse the results of elective colonic surgery in Denmark in a period before the

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