

5-YEAR RECURRENCE RATE AND DISEASE-FREE SURVIVAL FOR COLORECTAL CANCER IN CANTON TICINO, SWITZERLAND, 2005-2010



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INTRODUCTION

Colorectal cancer (CRC) is one of the most frequent type of tumour in Europe, indeed, it is the third, respectively second most frequent tumour for men and women respectively. In Switzerland, during the period 2008-2012, there are on average 4100 new diagnoses of CRC per year and 1600 deaths due to CRC (source: NICER, National Institute for Cancer Epidemiology and Registration). The first line curative treatment for most CRCs is the surgical resection; the drawback is that the operated patients are at risk for local relapse and distant metastasis. Purpose of the guidelines for follow-up and surveillance is to improve the diagnosis of pre-cancerous lesions and to identify CRC relapse at early stage. In the literature there are studies that identify risk factors for recurrence of CRC, nevertheless there is a lack of observational studies regarding recurrence rate and disease-free survival. Aim of the present study is to analyse, at the population-based level, the recurrence rate (local and lymph node/distant metastasis) of CRC after radical surgery.

METHODS

All CRCs diagnosed in Canton Ticino (southern part of Switzerland) during the period 2005-2010 are considered in the analysis. Data are extracted from the Ticino Cancer Registry database. We selected patients with non-metastatic CRC (M0, stage AJCC 7th ed. I-III) undergoing surgery with free margins (R0) within six months from the diagnosis. Intestinal endoscopic biopsies/resections and stomies only are excluded from the surgical treatments. Follow-up is updated at the 31.12.2016. The 5-years cumulative rates of local recurrence or lymph node/distant metastasis are calculated for invasive carcinomas of the colon and the rectum. Local recurrence is defined as a neoplasia arising in the same localization according to the fourth digit subsite of ICD-O-3 classification. 5-year disease-free survival is calculated with the Kaplan-Meier method and significant differences with respect to localization and stage of the disease are evaluated through the Log-Rank test.

RESULTS

1044 CRCs with stage AJCC 7th ed. I-III (724 for the colon and 320 for the rectum) are diagnosed in Canton Ticino during the years 2005-2010. 958 of them (91.8%, 687 for colon and 271 for rectum) are operated within six months from the diagnosis. The analysis is conducted on 919 patients (95.9%, 668 for colon and 251 for rectum) having free margins (R0) after curative surgical resection. The classification of patients according to the stage, is the following: 99 cases are stage I, 400 stage II, 415 stage III and the remaining 5 are not classifiable. The patients' mean age is 70.4 years (range: 29-99), 531 (57.8%) are men and 388 (42.2%) are women. Overall, 749 patients (81.5%; CI95%: 79.0%;84.0%) did not experience any recurrence, whereas the remaining 170 (18.5%; CI95%: 16.0%;21.0%) develop local recurrence or lymph node/distant metastasis within 5 years from the surgical operation (the mean time for recurrence is 1.9 years). Table 1 illustrates frequencies and percentages for the different types of recurrence according to the disease localization. 5-year disease-free survival is 79.6% and it is significantly associated with both localization and stage of the disease (Figure 1 and Figure 2).

| | Colon | | Rectum | | Colon-Rectum | |
|-----------------------|-------|-------|--------|-------|--------------|-------|
| | N | % | N | % | N | % |
| Local recurrence | 21 | 3.1% | 19 | 7.6% | 40 | 4.3% |
| Lymph node metastasis | 3 | 0.5% | 5 | 2.0% | 8 | 0.9% |
| Distant metastasis | 82 | 12.3% | 40 | 15.9% | 122 | 13.3% |
| No recurrence | 562 | 84.1% | 187 | 74.5% | 749 | 81.5% |

Table 1. 5-year recurrence rate

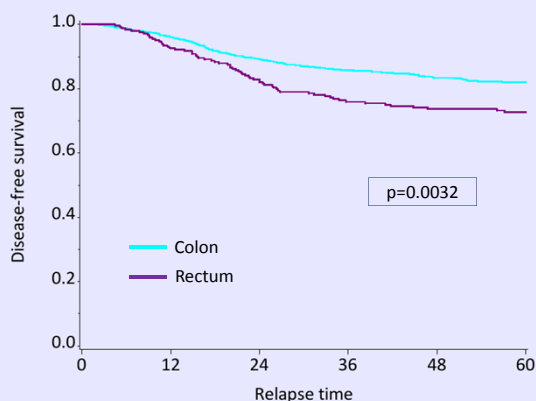


Figure 1. 5-year disease-free survival according to localization of the disease
Incidence period: 2005-2010
Date of follow-up: 31.12.2016

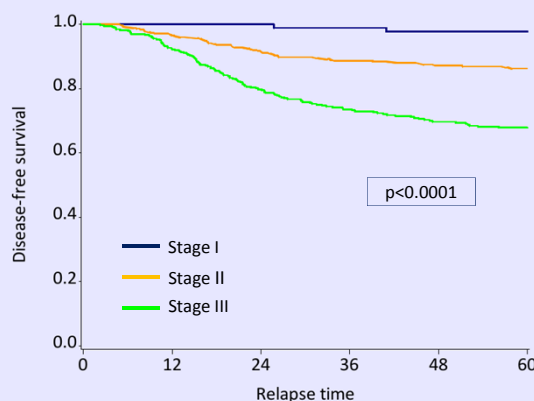


Figure 2. 5-year disease-free survival according to stage of the disease
Incidence period: 2005-2010
Date of follow-up: 31.12.2016

CONCLUSIONS

In the literature there are many studies and clinical trials evaluating the efficacy of the different surgical strategies (laparoscopy vs open surgery), in terms of disease-free survival, and analysing the potential risk factors for recurrence. None of these studies is population-based and the incidence periods considered are often before 2000. According to a German study (Staub et al., *World J Surg.* 2002) the recurrence rate is 27% for patients at stage I-IV. Two American studies show a significant association between stage and disease-free survival and report a 5-year local recurrence rate of 3.1% (Harris et al., *Dis Colon Rectum.* 2002) and 4.0% (Read et al., *J Am Coll Surg.* 2002), respectively. Moreover, according to Read et al., the 5-year disease-free survival is 84%, whereas it is 73% for another American study (Jacob et al., *Surg Endosc.* 2005). According to a Finnish review of 25 studies (Böckelman et al., *Acta Oncol.* 2015) the 5-year disease-free survival is 81.4% for patients with AJCC 7th ed. stage II disease and 49.0% for AJCC 7th ed. stage III disease. The results obtained in Canton Ticino, at the population-based level, are consistent with the literature and confirm the factors associated with an increased risk of recurrence. This analysis represents a good starting point for more specific studies, for example according to patients' characteristics. Cancer recurrence strongly impacts on patients' quality of life and it is related to quality of care, representing an indicator to be observed at the population-based level with more specific analysis, for example in function of patients' characteristics.