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Review article

Long-term changes in physical capacity after colorectal cancer treatment

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ABSTRACT

Older patients with colorectal cancer are faced with the dilemma of choosing between the short-term risks of treatment and the long-term risks of insufficiently treated disease. In addition to treatment-related morbidity and mortality, patients may suffer from loss of physical capacity. The purpose of this review was to gather all available evidence regarding long-term changes in physical functioning and role functioning after colorectal cancer treatment, by performing a systematic Medline and Embase search. This search yielded 27 publications from 23 studies. In 16 studies addressing physical functioning after rectal cancer treatment, a median drop of 10% (range −26% to −5%) in the mean score for this item at three months. At six months, mean score was still 7% lower than baseline (range −18% to 0%) and at twelve months 5% lower (range −13% to +5%). For role functioning (i.e. ability to perform daily activities) after rectal cancer treatment, scores were −18% (range −39% to −2%), −8% (range −23% to +6%) and −5% (range −17% to +10%) respectively. Elderly patients experience the greatest and most persistent decline in self-care capacity (up to 61% at one year). This systematic review demonstrates that both physical functioning and role functioning are significantly affected by colorectal cancer surgery. Although initial losses are recovered partially during follow-up, there is a permanent loss in both aspects of physical capacity, in patients of all ages but especially in the elderly. This aspect should be included in patient counselling regarding surgery.

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1. Introduction

Over the past ten years, the incidence of colorectal cancer in the Netherlands has risen by 43%. It is currently one of the most common malignancies in both men and women and 12% of cancer-related deaths can be attributed to this disease.[1] Over one-third of newly diagnosed patients are older than 75 years of age and with the imminent ageing of western societies, the number of older colorectal cancer patients is expected to increase greatly over the coming decades.[2] This will present a significant challenge to cancer specialists, as many questions still remain regarding the optimal treatment for this heterogeneous patient population.

The mainstay of colorectal cancer treatment is surgery. Previous studies have demonstrated that older age is a significant risk factor for postoperative complications[3] and the impact of such adverse events also appears to be higher in older patients.[4] In colon cancer, emergency procedures further increase risks of complications[5] and mortality, while rectal cancer surgery is generally more extensive and often requires neo-adjuvant treatment which also carries morbidity risks. For older patients, an increased mortality rate has been found throughout the first year following surgery.[6]

In addition, decreased physiological reserves and comorbid conditions may also render the elderly at greater risk of becoming care dependent as a result of colorectal cancer treatment.[7] The ability to function independently can be an important determinant of quality of life for many older patients. As a result, the prolongation of active life-expectancy is much more important to them than prolongation of life-expectancy as such.[8] Older cancer patients may therefore have to choose between the short-term risks of complications due to treatment and the long-term risks of complications due to insufficiently treated disease. In symptomatic patients, the more immediate benefits of oncologic therapy may shift the balance in favour of active treatment, but when the cancer is asymptomatic and the estimated remaining life-expectancy is limited, this dilemma will be particularly pertinent.

Statistics regarding treatment-related morbidity and mortality are fairly well known,[9] both for colorectal cancer patients and for older patients in particular. However, data regarding functional changes are not readily available, and thus it is difficult to adequately inform patients in this regard. Therefore, the purpose of this systematic review was to gather all available evidence regarding changes in functional capacity after colorectal cancer treatment.

2. Materials and Methods

2.1. Search Strategy and Article Selection

We set out to identify full-text publications of studies addressing long-term changes in functional capacity after definitive treatment for colorectal cancer. For end-points, the following items were defined: changes in physical functioning and the ability to perform daily activities and care dependence.

On December 27th 2013, a search was performed in both Medline and Embase using synonyms of 'cancer' and 'colorectal surgery' and 'functional capacity or quality of life'. Details of the search can be found in Appendix 1. Quality of life was included in the search because many quality of life assessment tools include subscales for physical capacity such as physical functioning or role functioning (i.e. the ability to perform daily activities). As treatment strategies have changed significantly over time, only studies published after January 1st 2000 were included. Furthermore, inclusion was limited to studies published in English.

The titles and abstracts of all studies retrieved by the search were assessed by one investigator (MH) to determine which were eligible for further investigation. All potentially relevant articles were subsequently screened as full text by two authors (MH and MP). Studies were excluded if the primary intervention did not include surgery, if the study population included patients with benign colorectal diseases, and other types of malignancies, specific syndromes or metastatic/recurrent colorectal cancer. Studies focusing only on functioning of the digestive or