

IMPACT OF PREOPERATIVE RADIOTHERAPY ON GENERAL AND DISEASE-SPECIFIC HEALTH STATUS OF RECTAL CANCER SURVIVORS: A POPULATION-BASED STUDY

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Purpose: To date, few studies have evaluated the impact of preoperative radiotherapy (pRT) on long-term health status of rectal cancer survivors. Using a population-based sample, we assessed the impact of pRT on general and disease-specific health status of rectal cancer survivors up to 10 years postdiagnosis. The health status of older (≥ 5 years old at diagnosis) pRT survivors was also compared with that of younger survivors.

Methods and Materials: Survivors identified from the Eindhoven Cancer Registry treated with surgery only (SU) or with pRT between 1998 and 2007 were included. Survivors completed the Short Form-36 (SF-36) health survey questionnaire and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire–Colorectal 38 (EORTC QLQ-CR38) questionnaire. The SF-36 and EORTC QLQ-CR38 (sexuality subscale) scores of the survivors were compared to an age- and sex-matched Dutch normal population.

Results: A total of 340 survivors (response, 85%; pRT survivors, 71%) were analyzed. Overall, survivors had similar general health status. Both short-term (< 5 years) and long-term (≥ 5 years) pRT survivors had significantly poorer body image and more problems with gastrointestinal function, male sexual dysfunction, and defecation than SU survivors. Survivors had comparable general health status but greater sexual dysfunction than the normal population. Older pRT survivors had general and disease-specific health status comparable to that of younger pRT survivors.

Conclusions: For better survivorship care, rectal cancer survivors could benefit from increased clinical and psychological focus on the possible long-term morbidity of treatment and its effects on health status. © 2011 Elsevier Inc.

Health-related quality of life, Preoperative radiotherapy, Rectal cancer, Survivors, Symptoms.

INTRODUCTION

Preoperative radiotherapy (pRT) for rectal cancer improves local control but offers no additional survival advantage when provided concurrently with total mesorectal excision (TME) technique (1–3). Dutch treatment guidelines recommend pRT (5 fractions of 5 Gy) for all resectable clinical tumor stage (cT)2–3 rectal tumors (4).

With improvements in treatment, the number of rectal cancer survivors in the Netherlands is projected to increase from 19,000 in 2000 to $\approx 34,000$ by 2015 (5), of whom $> 50\%$ will be long-term survivors (> 5 years after diagnosis) (6, 7). As survival improves, the long-term effects of pRT on patients' well-being are of greater significance. Results from randomized trials indicated that pRT was associated with poorer urinary, bowel, and sexual function at > 5 years

after diagnosis (3, 8). Relatively few population-based studies have evaluated the long-term effect of pRT on health status of rectal cancer survivors (9–12). Furthermore, hardly any studies have investigated the association between age at diagnosis and pRT on health status. Concerns regarding the feasibility of radiotherapy exist, especially among elderly patients with a range of heterogeneous comorbid conditions that could influence their radiotherapy tolerance (13, 14).

This population-based study aimed to assess the impact of pRT on general and disease-specific health status of rectal cancer survivors up to 10 years postdiagnosis. Our hypotheses were as follows: (1) pRT survivors would have comparable general but poorer disease-specific health status than survivors treated with surgery only (SU); (2) survivors would have comparable general but poorer disease-specific health status compared with a Dutch normal population;

(3) older pRT survivors (≥ 75 years old at diagnosis) would have poorer general and disease-specific health status than younger pRT survivors.

METHODS AND MATERIALS

Setting and participants

The Eindhoven Cancer Registry (ECR) records data of all newly diagnosed cancer patients in the southern part of The Netherlands, an area with 2.4 million inhabitants, 10 hospitals, and two large radiotherapy institutes (15). Individuals diagnosed with rectal cancer in the period 1998 to 2007, as registered in the ECR, were eligible for participation in the study. Patients who had died, according to the ECR and the Central Bureau for Genealogy, which records all deaths via the Dutch civil municipal registries and hospital records, were excluded. From the potential sample of 2,118 survivors, a weighted random selection of 738 survivors based on year of diagnosis and sex was made (Fig. 1). The weights were derived from the distribution of rectal cancer survivors in the general population. Survivors with fewer years since diagnosis for inclusion in future follow-up assessments were oversampled. After excluding survivors for reasons shown in Fig. 1, data collection started in January 2009. A local certified Medical Ethics Committee approved this study.

For this analysis, all rectal cancer survivors treated with either pRT or SU were included, except for 4 survivors who had metastasis at diagnosis. A total of 340 (pRT, 242; SU, 98) rectal cancer survivors were included in the final analysis (Fig. 1). Low anterior resection was the most common surgical procedure (pRT, 149; SU, 52) followed by abdominoperineal resection (pRT, 79; SU, 9) (79 pRT; 9 SU). Among SU survivors, 16 (16%, cT1–2; cT unknown, 14 survivors) received polypectomy. As our objective was to assess the impact of pRT on health status, we excluded those survivors who had received either radiotherapy or chemotherapy only ($n = 6$ subjects), postoperative radiotherapy ($n = 33$ subjects), pRT plus surgery plus chemotherapy ($n = 65$ subjects), or surgery plus chemotherapy ($n = 28$ subjects).

Data collection

Eligible survivors were informed about the study by letter from their (former) attending surgeons. The letter explained that by completing and returning the enclosed questionnaire, survivors consented to participate in the study and agreed to the linkage of the questionnaire data with their disease history in the ECR. Survivors were reassured that refusal to participate had no consequences for their follow-up care or treatment. Nonrespondents were sent a reminder letter and questionnaire within 2 months.

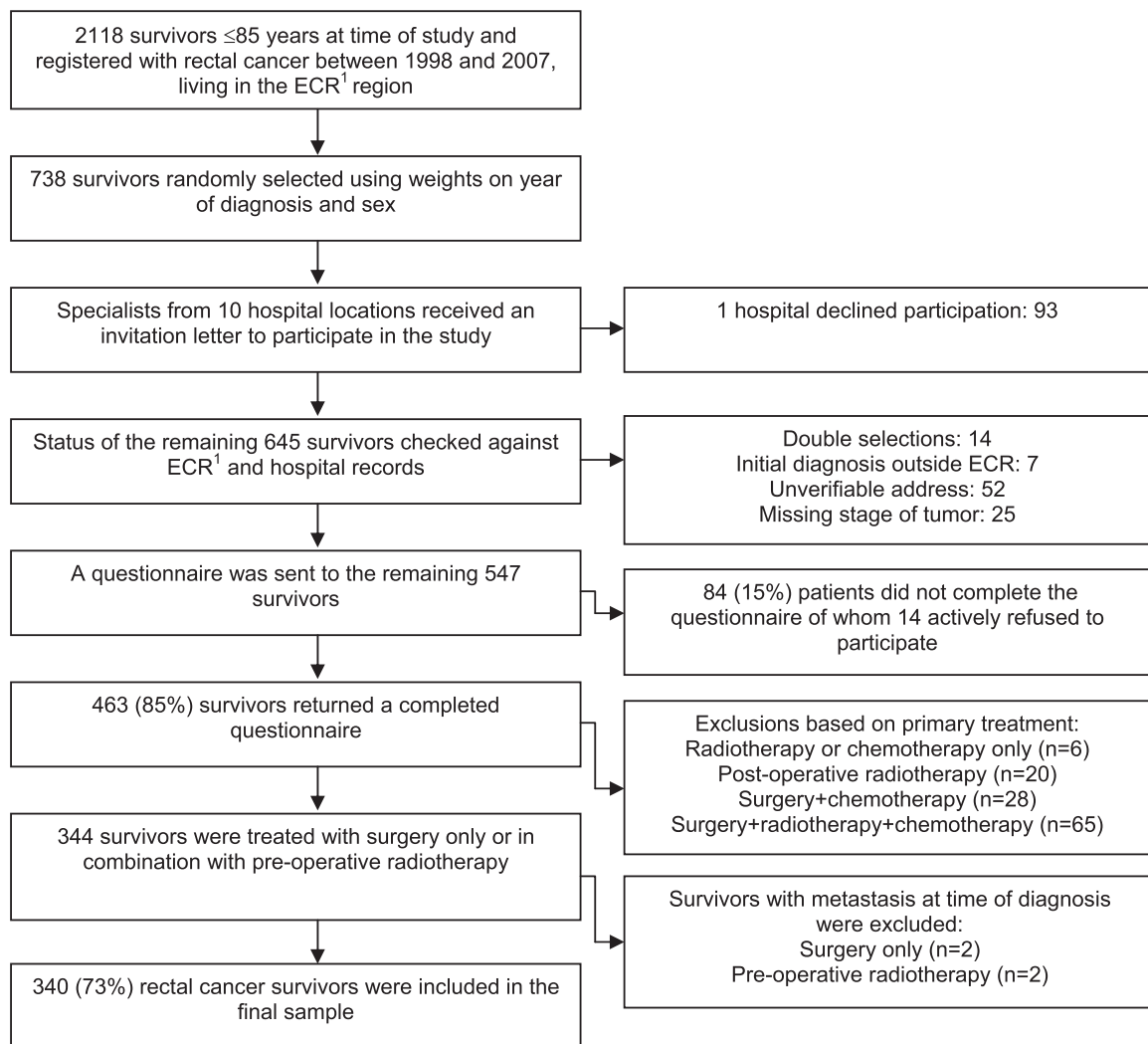


Fig. 1. Flowchart shows the data collection process. ECR¹, Eindhoven Cancer Registry.

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