Survivorship care for colon cancer patients

Towards more involvement of the general practitioner

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CHAPTER 5

General practitioners' involvement during survivorship care of colon cancer in the Netherlands; primary health care utilization during survivorship care of colon cancer, a prospective multicentre cohort study

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Abstract

Background: Primary health care use increases when cancer is diagnosed. This increase continues after cancer treatment. More generalist care is suggested to improve survivorship care. It is unknown to what extent cancer-related symptoms are currently presented in primary care in this survivorship phase.

Objective: To analyse primary health care utilization of colon cancer patients during and after treatment with curative intent.

Methods: In a prospective multicentre cohort study among patients with curatively treated colon cancer, we describe the primary health care utilization during the first 5 years of follow-up. Data were collected at general practitioner (GP) practices during 6 months.

Results: Of 183 included participants, 153 (84%) consulted their GP resulting in 606 contacts (mean 3.3, standard deviation 3.01) with on average 0.9 contact for colon-cancer-related (CCR) problems in the 6-month study period. Median time after surgery at inclusion was 7.6 months (range 0–58). Abdominal pain and chemotherapy-related problems were the most frequently reported CCR reasons. Of the CCR contacts, 83% was managed in primary care. As time after surgery passed, the number of CCR contacts declined in patients without chemotherapy and remained constant in patients who received chemotherapy.

Conclusion: Colon cancer survivors contact their GP frequently also for reasons related to cancer. Currently, a formal role for GPs in survivorship care is lacking, but nevertheless GPs provide a substantial amount of care. Working agreements between primary and secondary care are necessary to formalize the GP’s role in order to improve the quality of survivorship care.

Introduction

Yearly, more than 10,000 patients are diagnosed with colon cancer in the Netherlands. [1] The incidence is expected to increase due to an ageing and growing population. Also, detection and treatment have improved, leading to a declined mortality. These developments led to an increased number of colon cancer survivors with early and late side-effects. [2, 3] Currently, survivorship care is mainly delivered in the hospital and the main focus is on detection of recurrences. The national guideline includes periodical carcinoembryonic antigen blood testing, imaging of the liver and colonoscopy during 5 years after treatment. [4] Apart from this follow-up, the provision of general survivorship care is not always adequate as unfulfilled psychosocial and information needs about late effects are reported. [5] More involvement of primary care is suggested to improve the quality of survivorship care. [2, 6, 7] In addition, since chronic comorbid conditions are common in cancer survivors, a generalist approach is needed. [2] As the prevalence of colon cancer is high and the follow-up guideline is not complicated, survivorship care of colon cancer might be transferred to primary care. [7] The current role of general practitioners (GPs) in survivorship care is not well defined. In the Netherlands and other countries, the degree of involvement in survivorship care varies. [8, 9] Recent studies showed that primary health care use of patients is increased during follow-up of cancer, but it is unclear to what extent these contacts are related to colon cancer. [10-13] Also, it is unknown how symptoms related to colon cancer are currently managed by the GP. To develop a comprehensive overview of the current GP's workload regarding these patients, more knowledge of the number and content of these contacts after treatment of colon cancer is needed. The aim of this study is to analyse primary health care use of patients after treatment with curative intent of colon cancer and to explore the reasons for contacts. The contacts with primary care will be differentiated between colon-cancer-related (CCR) and non-colon-cancer-related (NCCR) reasons. Furthermore, patient characteristics related to CCR and NCCR contacts are assessed.

Methods

Study design and setting

This study is part of a prospective cohort study in which patient-reported outcomes were measured during a 6-month period by surveys among patients who were surgically treated with curative intent for colon cancer and who currently participate in a follow-up program in secondary care. The surveys were based on existing validated questionnaires [14-20] and assessed the presence, type and severity of physical symptoms, psychological and social problems and functional capacity. The baseline results have been published before. [21] In this study, the primary health care utilization of the participants during these 6 months is analysed. Patients were selected in six Dutch hospitals. Selection was done by using institutional colorectal cancer databases. Recruitment of patients was done at the outpatient clinic of the departments of surgery, oncology or gastroenterology, depending on which department organized follow-up of colon cancer. The inclusion period was November 2013 until January 2015.

Participants

Inclusion criteria were Stage I, II or III colon carcinoma, defined as a tumour located 15 cm above the anal verge. Patients could be included at any moment between surgery and the following 5 years of scheduled follow-up. [4] Patients treated with adjuvant chemotherapy were eligible as well. Patients with Stage IV colon cancer, hereditary colon cancer, a history of inflammatory bowel disease, rectal cancer, (sub)total colectomy, a history of other primary cancer or with complications during or after surgery that warranted specialist care or who needed increased intensity of surveillance with respect to colon cancer follow-up were excluded. All patients received verbal and written study information. If willing to participate, patients were asked to complete and sign a consent form. Study information was sent to the participants' GP.

Data collection

During the 6-month study period, data of the participants' health care use in GP practices were collected at the individual GP practices via participants' electronic medical records (EMR), together with information on comorbid conditions, coded by International Classification of Primary Care (ICPC) chapter. [22] Information about comorbid conditions was supplemented with data obtained by participants' hospital records and by the patient-reported outcome surveys. Furthermore, tumour characteristics and treatment information were obtained from participants' hospital records and information on sociodemographic background was obtained through the surveys. Data of all contacts of the participant with the GP practice were registered, including telephone contacts and contacts with other health care providers besides the GP (i.e. office assistants and specialized nurses). Data of the reasons for contact, findings, diagnoses and interventions were collected. Prescriptions were not included in the analysis when repetitive. A contact was considered as CCR if the GP mentioned a relation to colon cancer in his/her notes or when it could be derived from the GP's notes that a problem or symptom was related to colon cancer. Reasons for contact that were not related to cancer were registered as NCCR. All contacts were evaluated by two researchers (L.D. and H.M.) and in case of disagreement a third researcher (J.W.) was consulted. Statistics Data were analysed using SPSS Statistics version 23.0 and R version 3.4.3 including library (MASS). Chi-square and Fisher's exact tests were used to analyse if patient characteristics were associated with having contact with a primary care provider. The independent samples t-test and Mann-Whitney U-test were used to compare means and medians, respectively. We considered several probability distributions for modelling the number of contacts per patient over 6 months: the Poisson, the negative binomial and zero-inflated distributions. Based on Akaike's Information Criterion (AIC), the negative binomial distribution (using the log link function) fitted our data best for both CCR and NCCR contacts, indicating that overdispersion was clearly present. The patient and tumour characteristics that were assessed in the negative binominal regression models for CCR and NCCR contacts were age, gender, having a chronic comorbid condition, diagnosis of recurrent disease during the study period, time after surgery, adjuvant treatment with chemotherapy, tumour stage, living situation (together or alone), employment status (active, inactive or sick leave) and educational attainment. The variables that provided the best models based on the AIC were included in the negative binomial regressions. Contacts are presented in 6 months rates and rate ratios (RR) and 95% confidence intervals.

Results

Of the originally included 227 participants, EMR data were available of 183 participants. EMR data of patients were not available because GPs did not respond (n=23), patients did not provide consent to contact their GP for extraction of EMR data (n=13) and because patients withdrew their cohort participation prematurely (n=8). Table 1 shows the participants' characteristics. The mean age of the participants was 67 years (range 38–90) and 50% was female.

During 6 months, 153 of the 183 participants (84%) had one or more contacts with the GP practice, resulting in 606 contacts [3.3 contacts per patient on average, standard deviation (SD) 3.01, median 3, range 0–17]. Contacts were predominantly face-to-face consultations (n=408, 67%). The remaining contacts were telephone contacts (n=171) and home visits (n=27). GPs were the most frequently consulted care providers (n=430, 71%), followed by office assistants (n=100) and specialized nurses (n=76). The participants who did not have contact with their GP practice during the study period were younger compared to the participants who had contact (mean age 63 years versus 68 years, p=0.005) and had less comorbidity, especially less cardiovascular diseases (47% versus 75%, p=0.002 and 30% versus 50%, p=0.04, respectively; Table 2).

Table 1. Characteristics of patients with colon cancer who have been treated with curative intent and participated in a routine follow-up program in secondary care (2013-2015)

	Participants (n=183)
Age (years, mean, SD[a])	67.4 (10)
Gender (female, %)	91 (50)
Time after surgery at inclusion (months, median, range)	7.6 (0-58)
Tumour stage[b] (%)	
I	46 (25)
II	64 (35)
III	73 (40)
Participants who were treated with adj. CTx[c], n (%)	69 (38)
Participants receiving adj. CTxc before inclusion, n (%)	41 (22)
Participants receiving adj. CTxc during study, n (%)	28 (15)
Recurrent disease during study	11 (6)
Time after surgery to detection of recurrent disease (months, median, range)	12 (4.7-28.9)
Living situation, n (%)	
Living together	136 (74)
Living alone	47 (26)
Employment status, n (%)	
Active	27 (15)
Inactive (mostly retired)	143 (78)
(partly on) sick leave	13 (7)
Educational attainment, n (%)	
Primary or none	9 (5)
Secondary	107 (59)
Vocational education	48 (26)
University	19 (10)

[a] SD: Standard deviation. [b] Tumour stage was defined using the TNM5 criteria. [23] [c] adj. CTx: adjuvant chemotherapy.

Table 2. Characteristics of patients with colon cancer who had contact with the practice of the general practitioner versus patients who did not had contact during routine follow-up (2013-2015).

	Patients with contact (n=153)	Patients with no contact (n=30)	p-value
Age (years, mean, SD[a])	68 (9)	63 (10)	0.005
Gender (female, %)	78 (50)	13 (43)	0.44
Time after surgery (months, median, range)	7.3 (0-58)	7.7 (3-25)	0.47
Tumour stage[b] (%)			0.14
I	39 (25.5)	7 (23)	
II	49 (32)	15 (50)	
III	65 (42.5)	8 (27)	
Participants treated with adj. CTx[c], n (%)	62 (41)	7 (23)	0.08
Adj. CTx[c] before study, n (%)	38 (25)	3 (10)	0.08
Adj. CTx[c] during study, n (%)	24 (16)	4 (13)	1
Comorbidity, n (%)	114 (75)	14 (47)	0.002
Cardiovascular disease	77 (50)	9 (30)	0.04
Musculoskeletal disorders	24 (16)	7 (23)	0.3
Psychologic disorders	14 (9)	1 (3)	0.5
Urologic disorders	21 (14)	0 (0)	
Skin	13 (9)	3 (10)	0.7
Other[d]	24 (16)	5 (17)	1
Stoma	15 (10)	4 (13)	0.5
Diabetes	28 (18)	0 (0)	
Hypertension	59 (39)	8 (27)	0.2
Asthma/COPD	13 (9)	3 (10)	0.7

Percentages are calculated within the group of participants; e.g. patients with contacts and patients without contacts (n=153, n=31). [a] SD: Standard deviation, [b] Tumour stage was defined using the TNM5 criteria, [23] [c] adj. CTx: adjuvant chemotherapy, [d] reported by less than 5% of the participants; general and unspecified conditions, conditions concerning lymphatics, digestive system, eye, ear, male and female genital system and neurological conditions.

Of all contacts during the 6 months of follow-up, 26% were for CCR reasons (mean 0.87 contact per patient, SD 1.88). Abdominal pain (18%) and symptoms associated with chemotherapy (16%) were the most frequently reported reasons of CCR contacts. Another reason was a 'social' contact (14%), to evaluate and discuss patients' general condition, hospital visit and admissions in the context of cancer (Table 3). Problems related to the skin (17%), endocrine and metabolic system (16%), cardiovascular and musculoskeletal system (both 13%) were the most common registered reasons for NCCR contacts. GPs managed 83% of the CCR contacts and 91% of the NCCR contacts without consulting secondary care. Of the contacts related to chemotherapy, 92% was managed in primary care.

Table 3. Reasons for colon-cancer-related contacts in primary care of patients who have been treated for colon cancer with curative intent (2013-2015)

	n (%)
Abdominal pain	29 (18)
Chemotherapy-related problem[a]	26 (16)
Social contact[b]	22 (14)
Altered bowel habits[c]	20 (13)
Psychological problem[d]	19 (12)
Wound and/or post-operative problem	8 (5)
Other reason[e]	31 (19)
Unknown reason	5 (3)

[a] Chemotherapy-related problems were hair loss, pain, change of taste, nail and skin problems, neuropathy and oedema. [b] Evaluation of general condition and hospital admissions or visits. [c] Constipation and/or diarrhea. [d] Psychological problems were anxiety, sleep disorder, sadness/depression and burnout. [e] Other reasons reported by less than 5% of the contacts; stoma related problems, nausea, fatigue, erectile dysfunction, anaemia.

The variables age, gender, comorbidity, recurrent disease diagnosis during the study period, time after surgery and treatment with chemotherapy were included in the negative binomial regression model for CCR contacts based on the best model. The variables tumour stage, living situation, employment status and educational attainment were excluded since they did not seem to influence the CCR model. Table 4 shows the estimated 6 months contact rate of the model's reference and rate ratios compared to the reference. The model was extended with an interaction term between adjuvant chemotherapy treatment and time after surgery to investigate potential different associations for these groups over time. Patients who had been treated with adjuvant chemotherapy had a rather constant mean number of CCR contacts (0.95 times per 6 months), whereas patients who had no adjuvant chemotherapy tend to visit the GP 10% less often every month longer after surgical treatment (Table 4). Furthermore, the number of CCR contacts was associated with a recurrent disease diagnosis during the study period. The best model for NCCR contacts included the variables age, gender, having comorbidity, living situation, time after surgery and adjuvant chemotherapy treatment. The remaining variables did not seem to influence the NCCR model and were excluded. The number of NCCR contacts was related to advanced age, having a chronic comorbid condition and living situation. Patients who were living alone, patients with a chronic comorbidity and patients older than 67 years contacted their GP more frequently compared to patients living together, patients without chronic diseases and younger patients. We found no statistical evidence for an interaction between age and having a comorbid condition on the mean number of contacts not related to colon cancer (data not shown).

Table 4. Results of the negative binominal regression models for primary care contacts related to colon cancer of patients who have been curatively treated for colon cancer with curative intent (2013-2015).

Contacts related to colon cancer during six months of follow-up					
	Rate	Rate ratio		p-value	
	0.95 [0.44-2.05][a]				
Age		0.98 [0.95-1.01]		0.21	
Gender (male)		0.70 [0.42-1.17]		0.17	
Comorbid condition (≥1)		1.37 [0.78-2.42]		0.28	
Recurrent disease during study period		3.88 [1.63-9.20]		0.002	
No chemotherapy treatment		0.37 [0.18-0.77]		0.008	
Time after surgery[b]		No chemotherapy: 0.90 [0.84-0.97]	Chemotherapy: 1.00 [0.96-1.04]	0.0049	0.85

[a] Estimated rate of contacts related to colon cancer of a woman aged 67.4 years, without comorbidity who was included 11 months after surgery, had adjuvant treatment with chemotherapy and was not diagnosed with recurrent disease during the study period. [b] The model includes an interaction term between chemotherapy and time after surgery. Rate ratios of this interaction are shown for patients who had adjuvant chemotherapy and patients who did not have adjuvant chemotherapy treatment.

Discussion

Main findings

This prospective multicentre cohort study explored primary health care use of patients treated for colon cancer with curative intent, participating in a follow-up program in secondary care. In the Netherlands, the GP is the first caregiver to contact and refers to secondary care if necessary. Although GPs are currently not officially involved in survivorship care of colon cancer, they are dealing with symptoms related to colon cancer. The number of CCR contacts is associated with adjuvant chemotherapy treatment and detection of recurrent disease. Patients who had chemotherapy had a constant number of CCR contacts during the follow-up period of 5 years. For patients without chemotherapy, the number of CCR contacts declined over time. GPs managed the majority of CCR contacts themselves. Advanced age, having chronic comorbid condition(s) and living alone is associated with the number of NCCR contacts.

Strengths and limitations

This study systematically studied primary health care use of patients who had been treated for colon cancer. Because not only ICPC codes but also the written and not coded content of contacts has been examined, a comprehensive overview of reasons for health care use of colon cancer survivors could be presented. One of the limitations of our study is that data were extracted from the EMRs of the GPs of the participants. GPs could have documented selectively during consultations and, therefore, some of the discussed topics with patients could be missed. Finally, participation in research that measures patient-reported outcomes by questionnaires might have influenced the patients' health care use.

Discussion of findings and existing literature

Our results show that colon cancer survivors visit their GP for reasons related to colon cancer and its treatment. Abdominal pain, chemotherapy-related symptoms, social contacts, altered bowel habits and psychological problems were the most frequently reported reasons of CCR contacts. These reasons differ slightly from the reasons for consultations found in literature. Previous studies concluded that colon cancer survivors contacted their GP significantly more often for fatigue, digestive tract-related problems (e.g. constipation), anaemia, [10, 11] urological problems (e.g. urine tract infections) [10, 11, 13] and psychological problems (e.g. sleep disturbance) [10] compared to matched controls by studying the ICPC codes. The authors attributed these contact reasons to cancer treatment. In our cohort, fatigue and urological problems were found less frequent as reasons for consultation. Besides that, not all contacts for fatigue, urological and psychological problems could be directly related to cancer. These differences might be explained by the used method to examine the primary care contacts. While previous studies analysed ICPC codes only to assess the contact reasons, we examined the complete context of a contact. With this method we gained more insight in the specific reason for contacts, leading to a more reliable overview compared to a generic overview of contact reasons based on ICPC codes. Since contact reasons like fatigue, psychological and urological problems could be indirectly related to cancer, these reasons were not identified as CCR reasons in our cohort. This might explain the lower frequencies in our results. For health care providers, it is relevant to determine whether the problems patients report are related to cancer or not. In case of cancer-related fatigue or psychological problems, a specific approach is needed. [24, 25] Furthermore, although abdominal pain and altered bowel habits are common symptoms after bowel surgery, these symptoms might indicate recurrent disease. To prevent delayed diagnosis of recurrences, GPs' awareness and cooperation with secondary care, including fast referrals routes, are essential.

The GPs in our cohort were often consulted for chemotherapy-related symptoms. The Dutch chemotherapy regime of high-risk Stage II and Stage III colon cancer is capecitabine combined with oxaliplatin during 6 months. [4] It has been shown that GPs' awareness of long-term and late effects of chemotherapy, including oxaliplatin, is limited. [26] A Dutch qualitative study about oral chemotherapy showed that GPs feel uncertain about their knowledge of chemotherapeutics. [27] However, in our previous research we found that colon cancer survivors who had adjuvant chemotherapy treatment preferred to consult their GP for symptoms during survivorship care. [28] Our results suggest that GPs are able to manage problems related to chemotherapy without consulting the oncologist. It is possible that the chemotherapy-related problems the GPs in our current study were facing, could be handled with a general medical approach. In case of complex problems related to chemotherapy, patients could prefer to contact their oncologist instead of their GP, as has been shown in another study. [29] Nevertheless, it is important that GPs are informed about long-term and late effects of chemotherapy.

Our results indicate that GPs are consulted by patients after colon cancer treatment for cancer- and non-cancer-related problems, but their role in survivorship care is not well defined. If GPs are involved in survivorship care more formally, GPs may be more able to offer continuity of care in this trajectory and improve survivorship care. GPs' requirements like financial support, training and transmission of information by medical specialists must be met. [8, 9] Currently, the efficacy of GP-led survivorship care including follow-up compared to secondary care-led survivorship care for colon cancer patients is evaluated in a randomized controlled trial in the Netherlands. [30] The main outcomes are patients' quality of life and satisfaction with survivorship care.

Conclusion

Colon cancer survivors contact their GPs frequently also for reasons related to colon cancer and its treatment, especially after having been treated with chemotherapy. The majority of contacts related to colon cancer are managed in primary care. Despite the fact that GPs do not have a formal role in survivorship care, they do provide a substantial amount of care. Working agreements between primary and secondary care are necessary to formalize the GP's role in order to improve the quality of care for colon cancer survivors.

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