Economic evaluation of preoperative radiotherapy in rectal cancer : clinical and methodological issues in a cost-utility analysis alongside a randomized clinical trial in patients with rectal cancer undergoing total mesorectal excision

Brink, Mandy van den

CHAPTER 4

THE IMPACT OF DIAGNOSIS AND TREATMENT OF RECTAL CANCER ON PAID AND UNPAID LABOUR

Mandy van den Brink, Wilbert B. van den Hout, Job Kievit, Corrie A.M. Marijnen, Hein Putter, Cornelis J.H. van de Velde, Anne M. Stiggelbout

Diseases of the Colon & Rectum (in press in revised form)

Abstract

Purpose To describe the consequences of diagnosis and treatment of rectal cancer for paid and unpaid labour over time and to identify socio-demographic, treatment and quality of life related factors associated with paid and unpaid labour.

Methods Data were assessed prospectively in two samples of patients with primary rectal cancer, participating in a multi-center clinical trial, who were randomized to receive total mesorectal excision (TME) with or without 5×5 Gy preoperative radiotherapy (PRT). For paid labour, 292 patients who indicated paid labour before treatment filled out quality of life questionnaires which included questions on paid labour at 3, 6, 12, 18, and 24 months after surgery. For unpaid labour, 92 patients additionally filled out the Health and Labour questionnaire, which included questions on unpaid labour, before treatment, and at 3 and 12 months after treatment.

Results From 3 to 18 months after surgery, paid labour resumption increased from 19% to 63% ($p<0.001$). At 24 months after surgery, paid labour resumption was 61%. In a multivariate analysis, age over 55 ($p\leq0.001$), lower education level ($p\leq0.003$), shorter time since TME-surgery ($p<0.001$), PRT ($p=0.02$), lower valuation of overall health ($p<0.01$), more physical symptom distress ($p<0.001$), and more limitations in daily activities ($p<0.001$) were all associated with less or later resumption of paid labour. The average amount of unpaid labour increased from 17.3 hours per week at 3 months to 21 hours per week at 12 months after TME-surgery. In a multivariate analysis, only shorter time since TME-surgery ($p=0.03$) and male gender ($p<0.001$) were related to less unpaid labour.

Conclusions Diagnosis and treatment of rectal cancer affect paid and unpaid labour. The impact on paid labour is most pronounced. Until 18 months after surgery paid labour resumption increased, and remained stable thereafter. At 24 months, about 45% of patients had been unable to fully resume paid labour. Multiple socio-demographic, treatment and quality of life related variables were associated with paid labour. Interventions aimed at promoting paid labour participation in patients with rectal cancer should therefore be tailored to the specific characteristics and needs of those patients.

Introduction

Over the last decade treatments have been intensified and survival has improved for many types of cancer (1;2). Attention to the societal reintegration of survivors of cancer has increased accordingly (3), since for many patients cancer is no longer an incurable and fatal disease. The ability to resume paid and unpaid (e.g. housekeeping, child care, voluntary jobs) labour is in the interest of both the individual and society as a whole (4-6). Still, physical and psychosocial problems related to the diagnosis and treatment of cancer may hamper the resumption of labour in survivors of cancer, both in the short- and long-term.

In a recent review of studies on return to work in survivors of different types of cancer, the overall rate of return to work was 62%, but ranged from 30%-93% (3). Patients with head and neck cancer and patients with breast cancer least returned to work, whereas almost all patients with testicular cancer returned to work. Manual labour, a non-supportive work environment, and shorter time since the end of treatment were negatively associated with the rate of return to work. Higher age, a more advanced disease stage, more intensive treatment, and more health-related problems also tended to be negatively associated with the rate of return to work, but were less strongly correlated and varied over studies. However, the abovementioned studies included only few types of cancer (mostly breast cancer, testicular cancer, and Hodgkin's disease), all used cross-sectional designs and did not compare treatments. To date, no study has investigated the impact of diagnosis and treatment of rectal cancer on either paid or unpaid labour.

In patients diagnosed with primary rectal cancer, the best chance for cure is Total Mesorectal Excision (TME). Since the introduction of TME-surgery, local recurrence rates have decreased to rates as low as 5% to 8% (7;8), as compared with 15% to 45% after conventional surgery (9-12). The addition of short-term 5x5 Gy pre-operative radiotherapy (PRT) has been shown to further reduce local recurrences to rates as low as 2.4%, as compared with 8.2% without PRT (13). However, many patients need to be treated to prevent one local recurrence and may pay the price in terms of increased postoperative morbidity (e.g. wound problems, anastomotic leakage) and reduced quality of life (e.g. voiding, stool and ostomy problems) (14-23).

In this report, the results on paid and unpaid labour from a prospective randomized study on the effects of TME-surgery with or without 5x5 Gy PRT for rectal cancer are presented. More specifically, the purposes of our study were to 1) describe the consequences of diagnosis and treatment of rectal cancer for paid and unpaid labour over time; 2) to investigate whether PRT affects labour participation and 3) to explore other socio-demographic, treatment and quality of life related factors associated with differences in paid and unpaid labour.

Methods

Design

Patients were participants in the TME-trial. The design and results of this randomized clinical trial have been published previously (13). The main objective of the trial was to assess the additional value of PRT to TME-surgery in patients with a primary diagnosis of resectable rectal cancer. The main outcome measures were local recurrence and quality of life. Between January 1996 and December 1999, 1530 Dutch patients from 84 Dutch hospitals were randomized for TME-surgery with or without 5x5 Gy PRT. Surgery was to be performed within 10 days after the first irradiation. About two-third of patients received an ostomy (temporary or permanent) after TME-surgery. At the time of our analyses, all patients had been followed for a minimum of 2 years.

Data on paid and unpaid labour were assessed prospectively in two samples of patients until 24 and 12 months after TME-surgery respectively. Patients with a local or distant recurrence during the follow-up period were excluded from analysis, to be able to inform patients about the price to be paid, in terms of reduced labour participation, for the reduced local recurrence risk after PRT.

Paid labour

For paid labour, all 1530 patients in the TME-trial were asked to fill out quality of life questionnaires, supplemented with questions on paid labour, before treatment, and at 3, 6, 12, 18 and 24 months after surgery. Patients who did not return two consecutive questionnaires were considered withdrawn from the study and did not receive further questionnaires. Before treatment, patients were asked whether they had paid labour, and, if so, for how many hours per week. At 3, 6, 12, 18, and 24 months after surgery, patients were asked whether they had been completely, partially, or not at all able to resume paid labour, and whether they expected to return to work in the future (if they had not resumed paid labour yet). Patients without paid labour before treatment (n=1137, of whom 800 patients ≥ 65 years) were excluded from analysis, as were ineligible patients (n=5), patients who never had surgery (n=7), patients who died in hospital (n=5) and patients with a recurrence within 2 years after surgery (n=84), leaving 292 patients for the analysis of paid labour.

Unpaid labour

For unpaid labour, 112 Dutch patients who provided additional data for the cost-utility analysis alongside the TME-trial (24) were asked to fill out the Health and Labour questionnaire (25;26) before surgery, and at 3 and 12 months after surgery. Patients were asked for the number of hours per week (over the past 2 weeks) spent on household work, shopping, odd jobs around the house, voluntary work, child care, and education. Twenty patients were excluded because of ineligibility (n=1), no surgery (n=2), in-hospital death (n=4) and recurrence within 1 year after surgery (n=13), leaving 92 patients for the analysis of unpaid labour.

Socio-demographic, treatment-, and quality of life related factors

Socio-demographic (gender, age, marital status, education level) and treatment- related (PRT, time since the end of treatment, ostomy) factors were obtained from the general TME-study database. Health related quality of life (QoL) was measured by a QoL questionnaire (time frame past week) before treatment and at 3, 6, 12, 18 and 24 months after TME-surgery. The questionnaire included a visual analogue scale (VAS) ranging from 0 (death) to 100 (perfect health), measuring a valuation of overall health, scales for voiding (3 items) and defaecation problems (9 items), and the cancer-specific Rotterdam Symptom Checklist (RSCL) (27;28) which includes scales for physical symptom distress (23 items), psychological symptom distress (7 items), and limitations in activities of daily living (8 items). All items were measured on 4-point Likert scales, ranging from 1 (not at all) to 4 (very much).

Analyses

Questionnaires were considered missing if they were not returned at all, had no date on it, or were not returned within 6 weeks (at 3 months) or 3 months (at 6, 12, 18, and 24 months after TME-surgery). Missing values on the subscales of the RSCL, and on the voiding and defaecation subscales were replaced by the mean of the subject's non-missing answers if less than 50% of the items of the subscale were missing. Otherwise, the subscale was ascribed a missing value. The summed scores of the items of the QoL subscales were standardized to scale scores ranging from 0 (no problems at all) to 100 (most problems). Scores on the resumption of paid labour were standardized to a scale ranging from 0% (no resumption) to 100% (complete resumption).

All analyses were performed with SPSS statistical software (version 11.5 for Windows, Chicago, U.S.). Chi-square tests were used to compare proportions, Mann-Whitney tests to compare continuous variables. Differences in paid and unpaid labour and quality of life between randomization groups were evaluated with linear mixed model analyses to account for possibly non-ignorable drop-out (29), with time as a within-subjects factor.

Results

Response

For paid labour, response rates were 95%, 96%, 91%, 92%, 86%, and 84% before treatment and at 3, 6, 12, 18, and 24 months after surgery respectively (table 1). For unpaid labour, the response rates were 72%, 88%, and 93% before treatment, and at 3 and 12 months after surgery respectively. The lower response before treatment for unpaid labour is attributable to the fact that the Health and Labour questionnaire was administered preceding utility interviews, and, for reasons of logistics, 20 patients (22%) could not be interviewed before surgery.

Table 1. Response

Time		0	3	6	12	18	24
Paid labour							
Alive patients	N	292	292	291	286	283	283
No questionnaire sent*	N (%)	0 (0)	0 (0)	3 (1)	7 (2)	11 (4)	13 (5)
Missing questionnaires†	N (%)	15 (5)	10 (3)	20 (7)	12 (4)	16 (6)	20 (7)
Missing values‡	N (%)	0 (0)	2 (1)	4 (1)	6 (2)	10 (4)	12 (4)
Unpaid labour							
Alive patients	N	92	92		88		
Missing questionnaires†	N (%)	26 (28)	9 (10)		6 (7)		
Missing values‡	N (%)	0 (0)	2 (2)		0 (0)		

* Patients who did not return two consecutive questionnaires received no further questionnaires.

† Questionnaires were considered missing if they were not returned at all, had no date on it, or were not returned within 6 weeks (at 3 months) or 3 months (other times).

‡ Missing values refers to the number of patients who returned the questionnaires, but did not answer the questions on paid and unpaid labour.

Socio-demographic, treatment-, and quality of life related factors

Table 2 shows the characteristics of the patients included in the samples of paid and unpaid labour by randomization group.

Table 2. Patient characteristics by randomization group

Sample and randomization	Paid labour			Unpaid labour		
	PRT+TME (N=136)	TME (N=156)	P-value	PRT+TME (N=46)	TME (N=46)	P-value
Males (%)	76	68	0.11	62	62	0.99
Mean age in yrs (sd)	52 (7)	52 (6)	0.32	63 (10)	64 (10)	0.73
Married or partner (%)	91	87	0.40	83	73	0.20
Highest education (%)			0.26			0.86
Less than high school	14	11		30	26	
High school	64	73		63	64	
College degree	22	16		7	10	
Paid labour (%)	100	100		24	27	0.81
Ostomy (%)			0.47			0.31
No	31	31		28	15	
Temporary	36	42		48	59	
Permanent	33	27		24	26	
Adjuvant treatment (%)	8	16	0.04	9	17	0.22

Gender, age, marital status, education level, and having an ostomy were all not significantly different between randomization groups. Patients in the PRT+TME group received somewhat less often adjuvant treatment than patients in the TME alone group (p=0.04 and p=0.22 in the paid and unpaid labour samples respectively), which was due to the difference in post-operative radiotherapy. Patients without pre-operative radiotherapy but with microscopically positive resection margins received post-operative radiotherapy.

Table 3 shows the health related QoL scores in the paid and unpaid labour sample by randomization group. Physical symptom distress in the paid labour sample and the valuation of overall health in the unpaid labour sample were the only QoL scores that differed significantly between randomization groups ($p \leq 0.10$). Concerning physical symptom distress, patients in the PRT+TME group showed more improvement over time than patients in the TME alone group. Concerning the valuation of overall health, patients in the PRT+TME-group valued their overall health slightly lower than patients in the TME-group.

Table 3. Health related quality of life scores by randomization group*

Randomization	PRT+TME					TME					P-values		
Time and sample	3	6	12	18	24	3	6	12	18	24	Time	Randomi-zation	Time by randomization
Paid labour													
Overall health†	72.9	77.5	78.2	79.2	78.1	75.1	76.0	78.2	79.6	78.3	<0.01	0.87	0.40
Physical scale	13.1	11.3	10.4	10.0	9.6	12.8	12.8	12.3	12.0	12.7	<0.01	0.12	<0.01
Psychological scale	16.4	13.8	14.0	12.4	12.1	16.8	17.9	17.1	15.0	14.4	<0.01	0.18	0.21
Activity level scale	7.5	3.4	2.4	2.4	2.3	5.7	3.8	2.4	3.2	2.2	<0.01	0.88	0.50
Voiding	11.4	9.2	8.8	8.8	8.9	10.6	8.3	7.5	8.0	8.4	<0.01	0.50	0.99
Defaecation‡	30.9	26.0	21.1	20.7	20.9	27.0	23.6	21.2	21.0	21.1	<0.01	0.65	0.18
Unpaid labour													
Overall health†	74.1		77.5			77.7		83.6			<0.01	0.06	0.44
Physical scale	14.2		12.2			11.8		11.3			0.15	0.40	0.38
Psychological scale	14.8		13.3			10.2		12.3			0.86	0.28	0.28
Activity level scale	8.7		6.1			9.5		3.5			0.01	0.75	0.32
Voiding	9.7		10.0			10.9		9.1			0.57	0.95	0.46
Defaecation‡	27.0		14.4			30.0		21.1			0.02	0.42	0.66

* Estimates of average health related quality of life scores obtained by linear mixed model analyses.

† For the valuation of overall health a higher score indicates better health (range 0-100), for all other scales a higher score indicates more problems (range 0-100).

‡ For patients without a stoma.

Paid labour

Figure 1 shows the resumption of paid labour over time by randomization group. There was a significant increase in paid labour resumption over time ($p<0.001$). Overall, there was no significant difference in paid labour resumption between randomization groups ($p=0.46$), although irradiated patients tended to resume paid labour later than non-irradiated patients ($p=0.07$). At 24 months after surgery, 55%, 15% and 30% of all patients had completely, partially, and not resumed paid labour respectively. Of the patients who had not resumed paid labour at 24 months, still 6% expected to return to work in the future and 42% did not know whether they would return to work.

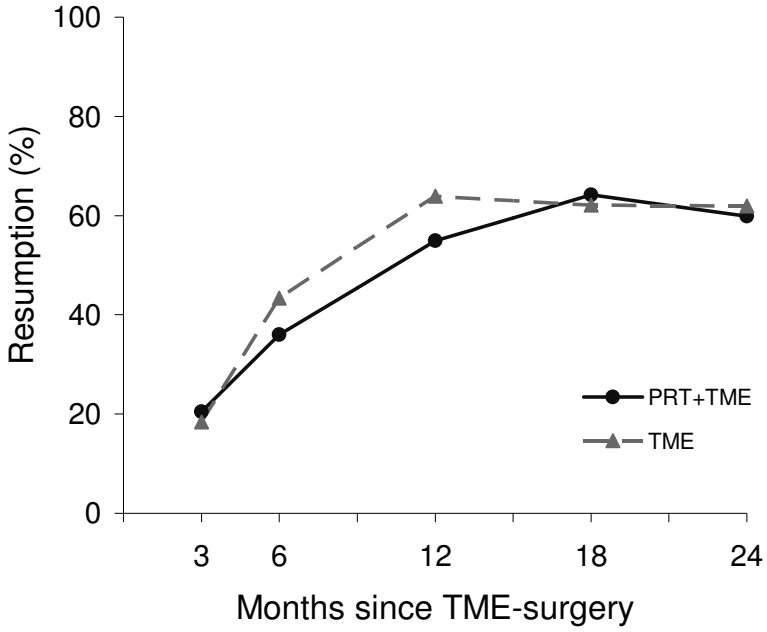

Figure 1. Paid labour since TME-surgery by randomization group

The results of the univariate analyses of paid labour resumption are shown in tables 4 to 6. Age over 55, being single, divorced or widowed, lower education level, PRT+TME, lower valuation of overall health, more physical and psychological symptom distress, more voiding and defaecation problems, and more limitations in daily activities, were all related ($p\leq0.10$) to less resumption of paid labour (main effect) or later resumption of paid labour (time by main effect).

Table 4. Univariate analyses of paid labour resumption and average hours of unpaid labour: sociodemographic variables

Sample	Paid labour (%)								Unpaid labour				
	Time					P-values			Time		P-values		
	3	6	12	18	24	Time	Main effect	Time by main effect	3	12	Time	Main effect	Time by main effect
Gender						<0.01	0.17	0.17			0.05	<0.01	0.68
Males	19.7	43.4	60.9	63.4	63.6				13.3	17.6			
Females	18.5	30.8	567	61.6	53.9				24.0	26.8			
Age						<0.01	<0.01	<0.01			0.19	0.38	0.41
< 55	19.0	40.9	64.6	69.2	70.7				20.8	21.8			
≥ 55	20.0	38.6	51.2	52.0	42.2				16.2	20.7			
Marital status						<0.01	0.07	0.94			0.03	0.24	0.41
Married or partner	20.7	41.4	60.1	63.9	60.4				17.0	20.0			
Single, divorced or widowed	9.8	26.9	474	51.0	53.2				19.2	25.8			
Highest education level						<0.01	<0.01	0.01			0.08	0.85	0.36
Less than high school	22.8	31.7	41.1	44.4	37.9				16.1	24.3			
High school	16.9	36.4	55.7	59.9	55.4				17.9	20.6			
College degree	25.5	58.5	81.4	83.1	86.5				16.1	17.9			
Paid labour											0.31	0.22	0.14
No									17.6	22.6			
Yes									16.6	15.7			

Table 5. Univariate analyses of paid labour resumption and average hours of unpaid labour: treatment-related variables

Sample	Paid labour (%)								Unpaid labour				
	Time					P-values			Time		P-values		
	3	6	12	18	24	Time	Main effect	Time by main effect	3	12	Time	Main effect	Time by main effect
Randomization						<0.01	0.46	0.07			0.04	0.63	0.78
PRT+TME	20.5	36.0	54.9	64.2	59.9				16.4	20.6			
TME	18.4	43.4	63.9	62.1	61.9				18.2	21.4			
Ostomy						<0.01	0.40	0.18			0.05	0.99	0.88
No	17.3	39.9	59.8	65.9	63.8				17.1	21.1			
Yes	20.4	40.1	59.8	58.3	56.2				17.4	20.8			
Adjuvant treatment						<0.01	0.13	0.45			0.21	0.35	0.97
No	19.6	40.7	61.6	64.6	62.2				16.8	20.5			
Yes	18.1	35.2	48.1	52.0	52.7				21.0	24.4			

Table 6. Univariate analyses of paid labour resumption and average hours of unpaid labour: health related quality of life*

Sample	Paid labour								Unpaid labour				
	Time					P-values			Time		P-values		
	3	6	12	18	24	Time	Main effect	Time by main effect	3	12	Time	Main effect	Time by main effect
Overall health†	0.21	0.61	0.79	0.35	0.34	<0.001	<0.001	0.001	0.04	0.12	0.16	0.35	0.54
Physical scale	-0.37	-1.44	-1.69	-1.18	-1.09	<0.001	<0.001	<0.001	-0.07	0.02	<0.01	0.87	0.64
Psychological scale	-0.15	-0.44	-0.69	-0.48	-0.46	<0.001	<0.001	0.004	-0.21	-0.05	<0.01	0.12	0.26
Activity level scale	-0.00	-0.54	-1.01	-0.60	-0.71	<0.001	<0.001	0.002	-0.07	-0.18	<0.01	0.41	0.95
Voiding	0.03	-0.40	-0.35	-0.26	-0.25	<0.001	0.003	0.304	-0.09	-0.10	<0.01	0.26	0.98
Defaecation‡	-0.09	-0.84	-0.74	-0.42	-0.42	<0.001	<0.001	0.05	0.20	0.29	<0.01	0.06	0.64

* Shown in this table are the regression coefficients. For example, for the valuation of overall health and paid labour resumption at 3 months, the estimated regression coefficient is 0.21, indicating that an increase of 1 on the VAS scale (range 0-100) is associated with an increase of 0.21 in paid labour resumption (range 0%-100%). For unpaid labour, the regression coefficient indicates the effect on hours of unpaid labour.

† For overall perceived health a positive sign indicates that better health is associated with more paid labour resumption and more hours of unpaid labour. For all other scales a negative sign indicates that less health problems are associated with more paid labour resumption and more hours of unpaid labour.

‡ For patients without a stoma.

Table 7. Multivariate analysis of paid labour resumption*

Variables	Time					P-values	
	3	6	12	18	24	Main effect	Time by main effect
Time	7.0	43.8	49.1	82.0	89.3	<0.001	
Age < 55 years	-0.2	2.9	9.8	17.1	26.4	0.001	<0.001
Highest education						<0.001	0.003
Less than high school	-1.6	-21.6	-32.8	-25.5	-38.9		
High school	-7.9	-16.0	-22.0	-15.6	-27.0		
PRT+TME	3.5	-9.0	-11.4	-0.1	-4.9	0.199	0.019
Overall health†	0.2	0.3	0.5	-0.0	-0.1	0.009	<0.001
Physical scale†	-0.0	-1.0	-1.0	-1.1	-0.9	<0.001	
Activity level scale†	-0.0	-0.4	-0.2	-0.4	-1.4	<0.001	<0.001

* Shown in this table are the regression coefficients. For age, education level, and randomization group the coeffient represents the increase (positive sign) or decrease (negative sign) in the resumption of paid labour by the indicated level of the variable. For the valuation of overall health, the physical scale, and the activity level scale the coefficients represent the effect of an increase in one unit of the variable on the resumption of paid labour.

† For overall health a positive sign indicates that better valued health is associated with more paid labour resumption. For the physical and activity level scales a negative sign indicates that less health problems are associated with more paid labour resumption.

All variables that were univariately related to paid labour resumption were included in a multivariate stepwise backward analysis (p>0.10 for removal). The resulting model is shown in table 7. Shorter time since TME-surgery, age over 55, lower education level, lower valuation of overall health, more physical symptom distress, and more limitations in daily activities remained associated with less resumption of paid labour (all p<0.01). Age over 55, lower education level, PRT+TME, lower valuation of overall health, and more limitations in daily activities also remained associated with later resumption of paid labour (all p<0.02).

Unpaid labour

Figure 2 shows the average hours of unpaid labour per week over time. There was a significant increase in hours of unpaid labour from 3 to 12 months after surgery (p=0.04), that did not differ significantly between randomization groups (p=0.63). At 3 and 12 months after surgery, the average number of hours of unpaid labour per week was estimated at 17.3 and 21 respectively.

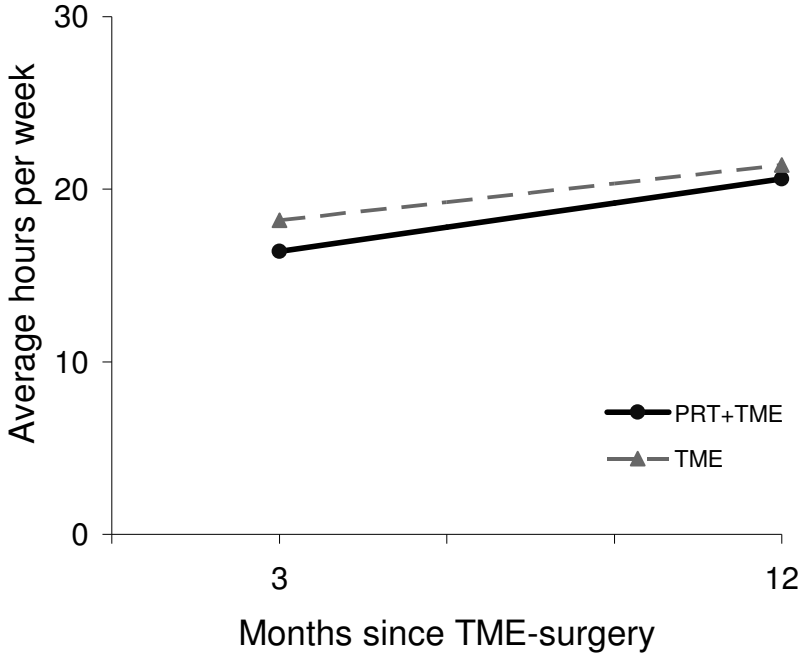

Figure 2. Unpaid labour since TME-surgery by randomization group.

The results of the univariate analyses of hours of unpaid labour are shown in tables 4 to 6. Male gender and defaecation problems were related to less hours of unpaid labour (p≤0.10), and were included in a multivariate stepwise backward analysis (p>0.10 for removal). In the multivariate analysis, defaecation problems were not associated with hours of unpaid labour (p=0.13). Shorter time since TME-surgery (p=0.03) and male gender (p<0.001) remained related to less hours of unpaid labour. At 3 and 12 months after surgery, males were estimated to perform 10.7 and 9.2. hours of unpaid labour less than females respectively.

Discussion

The purpose of this study was to describe the consequences of diagnosis and treatment of rectal cancer for paid and unpaid labour over time, and to explore socio-demographic, treatment and quality of life related factors associated with paid and unpaid labour. We prospectively followed two samples of patients that participated in a large multi-center randomized clinical trial and had been randomized to TME-surgery with or without short-term (5×5 Gy) PRT.

Our analyses show that there is an increase in the resumption of paid labour until 18 months after TME-surgery. After 18 months, paid labour resumption remains stable. At 24 months after surgery, paid labour resumption is 61%, which corresponds to the estimated overall rate of return to work of 62% for patients with heterogeneous types of cancer (3). However, estimated paid labour participation at 24 months in the TME-study is over 20% lower than paid labour participation in the general Dutch population (www.statline.cbs.nl), weighed for age and gender (data not shown). Irradiated patients tended to resume paid labour later than non-irradiated patients. From 18 months on, paid labour resumption did not differ between randomization groups.

For paid labour, our results confirm the results of previous cross-sectional studies that multiple variables tend to be univariately associated with the resumption of paid labour (3). In a multivariate analysis, socio-demographic (higher age, lower education level), treatment (shorter time since the end of treatment, PRT+TME) and quality of life related (lower valuation of overall health, more physical symptom distress, and more limitations in daily activities) factors were all independently associated with less or later resumption of paid labour (3). This may indicate that treatment related variables not only affect paid labour resumption by reduced quality of life, but also not being able to return to work may reduce quality of life (4). An alternative explanation might be that our measures of health-related quality of life were not sensitive enough or not able to capture all health consequences, e.g. irradiated patients may experience side-effects that were not fully measured. Further research is needed to gain more insight in the mechanisms by which socio-demographic and treatment related variables may affect paid labour resumption. This would enable health care workers to better support and advise patients in their decision to resume paid labour, or not.

For unpaid labour, the average number of hours of unpaid labour per week at 12 months after TME-surgery was 21, which corresponds to the average number of hours of unpaid labour reported by the general Dutch population (www.statline.cbs.nl). In the multivariate analysis, shorter time since TME-surgery and male gender were the only variables associated with less hours of unpaid labour. Our study may not have been sufficiently powered to detect smaller differences. However, unpaid labour may also be less affected by changes in socio-demographic, treatment or quality of life related variables than paid labour, because patients can perform unpaid labour at their own pace and time or because unpaid labour is less taken over by the social services system as compared with paid labour.

In conclusion, diagnosis and treatment of rectal cancer affect paid and unpaid labour. The impact on paid labour is most pronounced. From 3 to 18 months after surgery paid labour resumption increases, and 45% of patients are not able to fully resume paid labour. Multiple socio-demographic, treatment and quality of life related variables are associated with the resumption of paid labour, indicating that different factors contribute and may interact in the decision to resume paid labour, or not. Interventions aimed at promoting paid labour participation in patients with rectal cancer should therefore be tailored to the specific characteristics and needs of those patients.

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