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ORIGINAL ARTICLE

Sexual functions in adulthood after restorative proctocolectomy for paediatric onset ulcerative colitis

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Abstract
Background and aim Proctocolectomy with straight or J-pouch ileoanal anastomosis is the standard surgical treatment (ST) for ulcerative colitis (UC) also in children. Pelvic dissection may damage structures essential for sexual functions (SF). We compared SF in adults with ST during childhood or adolescence with adults with medical treatment (MT).
Materials and methods Sixty-three sexually active patients (ST 25, males 8; MT 38, males 19) median age of 27 years (range 17–41) (ST) and 29 years (20–40) (MT) (P = NS) were included. UC was diagnosed 15 years (5.1–26) (ST) and 7.5 years (2–20) (MT) ($P < 0.05$) before. Median ages at and follow-up after ST was 13 years (5.0–19) and 13 years (4.4–22), respectively. In ST and MT groups the daily stooling frequency and the incidence of soiling were 6 (2–17) and 2 (1–12), and 13/25 (52%) and 3/38 (8%), respectively ($P < 0.05$). SF were assessed with a structured form.
Results In ST and MT groups, 21/25 (84%) and 31/38 (82%) reported satisfactory SF and 17/25 (68%) and 28/38 (74%) enjoyable sex life (P = NS). Urinary and faecal incontinence disturbed SF in both ST and MT groups in 2/25 (8%) and 3/38 (8%) and 13/25 (52%) and 15/38 (39%) (P = NS in each). Faecal incontinence inversely correlated with sexual satisfaction in all patients (R range; 0.36–0.68, $P < 0.05$). No erectile problems occurred. One patient (MT) reported ejaculatory problems. In females, dysorgasmia and dyspareunia were reported by 1/17 (6%) and 6/17 (35%) (ST) and 1/19 (5%) and 11/19 (58%) (MT) (P = NS). With intention to conceive 2/5 females in ST and 2/3 in MT group became pregnant within 1 year (P = NS). Only 2/25 (8%) (ST) and 7/38 (18%) (MT) had received information of the effect of treatment on SF.
Conclusion Compared with adult CU patients with MT, SF in patients with ST for CU in childhood or adolescence were similar. ST at a young age does not seem to affect SF in adulthood. Faecal incontinency disturbed SF in MT and ST groups.

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Introduction

Restorative proctocolectomy with ileoanal anastomosis (RPIAA) is the mainstay of the surgical therapy for ulcerative colitis (UC). Sexual dysfunction after RPIAA in adults is not uncommon [1–4]. Pelvic dissection may damage prostate, vasa deferentia, and nerve function resulting in disturbance of erection and ejaculation in as much as 25% of males [1]. Postoperative adhesions and scarring may obstruct the fallopian tubes and reduce the resiliency of the vagina and the uterus and cause reduced fertility and dyspareunia in 30% of females [1–4].

Pediatric onset of UC is an aggressive disease and children undergo proctocolectomy typically during their puberty and sexual development. We hypothesised that surgery at this stage may be detrimental to sexual development. To this, we compared sexual functions (SF) of adult patients who had undergone RPIAA in childhood or adolescence with SF of adult patients on medical treatment for UC.

Patients and methods

Between 1985 and 2005, a total of 81 patients with paediatric onset of UC (<16 years) underwent RPIAA in the two major university hospitals, Helsinki and Tampere, in Finland. Seventy-nine patients were traced and invited to a follow-up outpatient visit. Of 36 attendees, 25 sexually active patients over the age of 16 years were included. Thirty-eight sexually active medically treated UC patients over 16 years of age, agreed as controls. The ethical committees of Helsinki and Tampere University hospitals had approved the study protocol.

The questions concerning SF are shown in Table 1. The questionnaire also included questions concerning bowel function, stool frequency, faecal incontinence and medication. Continuous variables between groups were compared with Mann–Whitney *U* test and frequencies with Fischer's exact test. Correlations were tested with Spearman Rank correlation.

Results

The RPIAA group is comprised 25 patients (8 males) with median age of 27 years (range 17–41), and the control group 36 patients (19 males) with median age of 29 years (range 20–40), ($P > 0.08$ for both), Body mass index (kg/m^2) was comparable in RPIAA group, 22 (17–37) and in controls 23 (16 – 35) [in surgical treatment (ST), the median age of UC diagnosis was 12 years (range 3.0–15) and total disease duration 15 years (5.1–26). In controls, the median age of diagnosis was 20 years (11–33) and disease duration 7.5 years (2.0–20) ($P < 0.05$ between the groups).

In RPIAA group, 17 (68%) patients had J-Pouch and 8 (32%) had straight IAA. Median age at surgery was 13 years (range 5.0–19). Indications for RPIAA were UC recalcitrant for medical treatment ($n = 19$) and fulminant colitis ($n = 6$). Twelve patients had experienced significant postoperative complications including small bowel obstruction ($n = 9$) and leakage and fistulization ($n = 3$). Nine (36%) patients had frequent, and ten (40%) occasional pouchitis. In two patients with RPIAA, Crohn's disease was diagnosed 2 and 6 years after proctocolectomy.

In the control group, maintenance medication included 5-ASA and azathioprine ($n = 20$), 5-ASA ($n = 1$), mercaptopurin ($n = 1$) and prednisone ($n = 1$). Three patients had no medication. During the disease course, 35 patients had been on systemic glucocorticoid therapy for at least 4 months.

Daily stool frequency was 6 (range 2–17) in RPIAA group and 2 (range 1–12) among the controls ($P < 0.05$). The overall frequency of any soiling (daytime or night time) was 13/25 (52%) in RPIAA and 3/38 (8%) in the control group ($P < 0.05$).

The results of the questionnaire on SF are presented in Table 1. The number of patients who had received information of the effect of the treatment of CU on SF was low (8 and 18%) in both groups. Although most patients, 31 (82%) in RPIAA group and 21 (84%) in the control group, were satisfied with their SF ($P = 0.93$), as many as 13 (52%) operated patients and 15 (39%) controls reported that faecal incontinence disturbed their SF ($P = 0.25$). Faecal incontinence during sex was inversely correlated with satisfaction on SF in both groups and sexes (*R* range; 0.36–0.68, $P < 0.05$ for all), and, in women with RPIAA, inversely correlated with the enjoyment of sex ($R = 0.55$, $P < 0.05$). In non-operated women, faecal incontinence during sex was inversely correlated with the frequency of orgasms ($R = 0.49$, $P < 0.05$). In all females pain during sex was not statistically significantly associated with decreased satisfaction on SF or enjoyment. Surgical complications, pouchitis and stool frequency were not statistically significantly correlated with satisfaction on SF, enjoyment, orgasm, pain or faecal incontinence during sex.

Discussion

This is the first study which assesses the effects of RPIAA, performed during childhood or adolescence, on SF in adulthood. We compared SF in patients who had undergone colectomy for UC during childhood or adolescence with medically treated adult UC patients. We aimed to disclose if surgery for UC early in life had adverse effects on SF in early adulthood.

According to our results, RPIAA during childhood or adolescence had no significant adverse effects on SF. Approximately 75% of patients either operated on or medically treated were satisfied with their SF and 70% found sex always enjoyable. There was no gender difference in sex satisfaction.

Most of the published studies concerning SF and the treatment of UC are of patients diagnosed in adult age and

Table 1 Results of the questionnaire

		Male			Female			All		
		RPIAA	Controls	*P*	RPIAA	Controls	*P*	RPIAA	Controls	*P*
Have you received information of the effect of treatment of CU on sexual functions?	Yes	0	4	NS	2	3	NS	2 (8%)	7 (18%)	NS
	No	7	14		14	15		21	29	
	Not known	1	1		1	1		2	2	
Do you enjoy sex?	Always	7 (88%)	16 (84%)	NS	10 (59%)	12 (63%)	NS	17 (68%)	28 (74%)	NS
	Sometimes	1	3		7	7		8	10	
Are you satisfied with your sexual functions?	Very	3 (38%)	12 (63%)	NS	8 (47%)	5 (26%)	N	11 (44%)	17 (45%)	NS
	Satisfied	4 (50%)	5 (26%)		6 (35%)	9 (48%)	S	10 (40%)	14 (37%)	
	Fairly	1	1		3	5		4	6	
	Little	0	1		0	0		0	1	
Have you received therapy for sexual dysfunction?	No	8	18	NS	17	19	NS	25	37	NS
	Yes	0	1		0	0		0	1	
Does faecal incontinence affect your sexual functions?	Often	0	0	NS	2 (12%)	3 (16%)	NS	2 (8%)	3 (8%)	NS
	Sometimes	4 (50%)	7 (37%)		8 (47%)	5 (26%)		12 (48%)	12 (32%)	
	Never	4	12		7	11		11	23	
Does urinary incontinence affect your sexual functions?	Never	7	19	NS	19	16	NS	23	35	NS
	Sometimes	1	0		0	3		2	3	
Have you undergone any medical assessments concerning conception?	Yes	8	17	NS	14	18	NS	3	3	NS
	No	0	2		3	1		22	35	
Male patients										
Do you have difficulties in getting an erection?	Never	8	19	NS						
Difficulties in maintaining an erection?	Never	8	19	NS						
Do you use some aid for erection?	Never	8	19	NS						
Have you problems with ejaculation?	Sometimes	0	1	NS						
	Never	8	18							
Female patients										
Do you experience pain during sex?	Sometimes	6 (35%)	11 (58%)	NS						
	Never	11	8							
Have you difficulties in reaching an orgasm?	Often	1 (6%)	1 (5%)	NS						
	Sometimes	10 (59%)	10 (53%)							
	Never	6	8							
Have you attempted pregnancy?	No	12	16	NS						
	Yes	5	3							
Have you, with an intention to conceive, become pregnant within 1 year?	No	3	1	NS						
	Yes	2 (40%)	2 (67%)							

RPIAA adult CU patients, restorative proctocolectomy during childhood or adolescence; *Controls* adult CU patients, medical treatment

unlike the present study, do not compare surgically and medically treated patients. There are controversial reports on the effect of ST on SF in women. Davies et al. [5] reported that in women the preoperative 73% incidence of abnormal SF decreased to 25% postoperatively at 12 months after RPIAA. Accordingly, Tiainen et al. [3] and Berndtsson et al. [6] reported improved sexual satisfaction in female patients 6 years and 1 year after RPIAA with J-Pouch. Ogilvie et al. [2] reported that after RPIAA and J-Pouch almost every other woman (mean age 38 years, mean duration from J-pouch 6.2 years) had postoperative sexual dysfunction. Ogilvie et al. [2] and Larson et al. [7] reported that after RPIAA majority of women experienced no improvement in their SF.

The present study indicated that faecal incontinence affected negatively on SF and sexual enjoyment in women

after RPIAA. This finding is in line with previous studies. Several studies have reported that the incidence of dyspareunia increases after RP and JPIAA. In the present study dyspareunia was less frequent in ST compared with non-operated women, but the difference was not statistically significant and dyspareunia did not worsen enjoyment or SF. It is evident that after RPIAA there is a slight decrease in fertility and the incidence of pregnancies [4]. In the present study, the number of female patients who attempted conception was too small to make any conclusions about fertility.

All male patients in this study reported high degrees of satisfaction on SF and sexual enjoyment. This result is in concordance with those of Larson et al. [7] and Gorgun et al. [8]. Although studies in adults have reported retrograde ejaculation, loss of ejaculation and impotence after RPIAA in 15–26% of patients [1, 6], none of those was reported by our patients with RPIAA.

According to our results it seems that, contrary to our initial hypothesis, RPIAA during childhood or adolescence is not detrimental to SF and the enjoyment of sex if compared with adult patients on medical treatment. This result may help patient counselling and the choice of treatment for patients with paediatric onset of UC.

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