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ORIGINAL ARTICLE

Sexual activity in patients after proctocolectomy with ileal pouch-anal anastomosis

Wpływ wytworzenia zbiornika jelitowego typu J na życie seksualne pacjentów po proktokolektomii

Authors' Contribution:
A – Study Design
B – Data Collection
C – Statistical Analysis
D – Manuscript Preparation
E – Literature Search
F – Funds Collection

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ABSTRACT:

Introduction: Proctocolectomy with ileal pouch-anal anastomosis is the gold standard in the surgical treatment of patients with ulcerative colitis, familial adenomatous polyposis and other colorectal diseases requiring colectomy. The treatment consists in removing the large intestine and creating an intestinal reservoir from the last ileum loop and then anastomosing the intestinal reservoir with the anal canal. Like any surgical procedure, RPC-IPAA also carries the risk of complications, both early and late. Late postoperative complications include sexual dysfunction.

Aim: The main goal of the following work is to assess the quality of life and sexual activity in patients having undergone the RPC-IPAA procedure at the General and Colorectal Surgery Clinic.

Material and methods: The study group consisted of patients aged 19–79 who had been subjected to RPC-IPAA procedures at the General and Colorectal Surgery Clinic in years 2010–2019. The study was conducted on the basis of a survey consisting of 50 questions about the social and mental condition, medical history and previous treatment as well as the quality of sexual life before and after surgery. The scale used for the assessment of the quality of sex life consisted of 5 grades: very low, low, medium, high, very high. Thirty subjects (21 men and 9 women) took part in the survey. Ulcerative colitis (86.6%) was the most common reason for qualification for restorative proctectomy among the examined patients; less common reasons included familial adenomatous polyposis (13.3%) and synchronous colorectal cancer (3.3%). A vast majority of the surgeries had been performed after 10 years' duration of ulcerative colitis, and the intestinal reservoir had been functioning for over a year at the time of the examination. In addition, the effect of taking steroids and the impact of early postoperative complications on the quality of sex life of patients was assessed.

Results: High or very high sexual activity before surgery was reported by 46% of patients whereas low or very low quality was reported by 13%. The rest of the responders assessed their pre-operative sexual activity as average. After surgery, 23% of patients rated their sexual activity as high or very high while 36.6% of patients rated it as low or very low ($P = 0.07$). It was also noted that taking corticosteroids before surgery decreased the quality of sex life after surgery ($P = 0.07$ for activity, $P = 0.04$ for quality). None of the women surveyed used artificial moisturizing of intimate places during sex. Only 1 person stated that they started using artificial moisturization of intimate places after the procedure ($P = 0.5$). None of the men surveyed had used pharmacological agents to help them obtain an erection before surgery while as many as 33% of responders reported the need for their use after surgery ($P = 0.008$). Other postoperative sexual dysfunctions were also registered, such as dyspareunia (13.3%), sensory disorder within the intimate region, fecal incontinence, and urinary incontinence.

Conclusions: To sum up, sexual activity and quality of sexual life deteriorated after RPC-IPAA in our patients.

KEYWORDS: familial adenomatous polyposis, quality of sexual life, restorative proctocolectomy, ulcerative colitis

STRESZCZENIE:

Wprowadzenie: Proktokolektomia odtwórcza (RPC-IPAA) jest „złotym standardem" w leczeniu chirurgicznym chorych z: wrzodziejącym zapaleniem jelita grubego, rodzinną polipowatością gruczolakowatą i innymi chorobami jelita grubego, wymagającymi kolektomii. Zabieg polega na usunięciu jelita grubego i odbytnicy oraz wytworzeniu zbiornika jelitowego z ostatniej pętli jelita krętego, a następnie zespoleniu zbiornika jelitowego z kanałem odbytu. Jak każda procedura chirurgiczna, tak również ta, niesie za sobą ryzyko powikłań, zarówno wczesnych, jak i późnych. Wśród późnych powikłań pooperacyjnych wymienia się m.in. zaburzenia funkcji seksualnych.

Cel: Celem niniejszego badania jest ocena jakości życia i aktywności seksualnej u pacjentów po RPC-IPAA operowanych w Klinice Chirurgii Ogólnej i Kolorektalnej Uniwersytetu Medycznego w Łodzi.

Materiał i metodyka: Grupę badaną stanowili pacjenci w wieku od 19 do 79 lat, leczeni w naszej Klinice w latach 2010–2019. Badanie zostało przeprowadzone na podstawie ankiety składającej się z 50 pytań dotyczących: stanu społecznego i psychicznego, wywiadu chorobowego i dotychczasowego leczenia oraz jakości życia seksualnego przed i po leczeniu operacyjnym. Skala oceny i jakości życia seksualnego była 5-stopniowa (bardzo niska, niska, średnia, wysoka, bardzo wysoka).

W ankiecie wzięło udział 30 osób (21 mężczyzn i 9 kobiet). Najczęstszą przyczynę kwalifikacji RPC-IPAA wśród badanych chorych stanowiło wrzodziejące zapalenie jelita grubego (80%), rzadziej – rodzinna polipowatość gruczolakowata (16,6%) oraz synchroniczny rak jelita grubego (3,3%). U zdecydowanej większości operacja została wykonana powyżej 10 lat trwania choroby, a zbiornik jelitowy w chwili badania funkcjonował powyżej roku. Ponadto oceniano wpływ przyjmowania kortykosteroidów przed zabiegiem oraz wpływ powikłań pooperacyjnych na jakość i aktywność seksualną chorych.

Wyniki: Czterdzieści sześć procent pacjentów oceniało aktywność seksualną przed zabiegiem na wysoką lub bardzo wysoką, a 13% na niską lub bardzo niską. Po zabiegu operacyjnym 23% pacjentów oceniło aktywność seksualną na wysoką lub bardzo wysoką, a 36,6% na niską lub bardzo niską (p = 0,07). Zauważono również, że przyjmowanie kortykosteroidów przed leczeniem operacyjnym pogarszało jakość życia seksualnego po zabiegu (p = 0,07 aktywności seksualnej, p = 0,04 dla jakości życia seksualnego). Wśród ankietowanych kobiet żadna nie stosowała sztucznego nawilżania miejsc intymnych w czasie stosunków płciowych. Po zabiegu jedynie 1 osoba zadeklarowała rozpoczęcie stosowania sztucznego nawilżania miejsc intymnych (p = 0,5). Wśród ankietowanych mężczyzn żaden nie korzystał ze środków farmakologicznych wspomagających uzyskać erekcję, natomiast po zabiegu aż 33% ankietowanych zgłosiło konieczność ich stosowania (p = 0,008). Zarejestrowano także inne pooperacyjne zaburzenia funkcji seksualnych, m.in.: dyspareunię (13,3%), zaburzenia czucia sfer intymnych, zaparcia, nietrzymanie stolca, nietrzymanie moczu.

Wnioski: Wśród badanych przez nas pacjentów aktywność i jakość życia seksualnego uległy pogorszeniu po zabiegu RPC-IPAA.

SŁOWA KLUCZOWE: jakość życia seksualnego, proktokolektomia odtwórcza, rodzinna polipowatość gruczolakowata, wrzodziejące zapalenie jelita grubego

ABBREVIATIONS

ACPGBI – The Association of Coloproctology of Great Britain and Ireland
FAP – familial adenomatous polyposis
RPC-IPAA – restorative proctocolectomy with ileal-pouch anal anastomosis
UC – ulcerative colitis

INTRODUCTION

Since 1978, proctocolectomy with ileal pouch-anal anastomosis has been the gold standard in the surgical treatment of patients with ulcerative colitis (UC) and familial adenomatous polyposis (FAP) [1–5]. The procedure consists of removing the large intestine and creating an intestinal reservoir from the last ileum loop and then anastomosing the intestinal reservoir with the anal canal. The most common configurations include the J-pouch and the S-pouch [6].

Despite many years of improvements, the procedure is still associated with the risk of numerous complications, both early and late. According to the Association of Coloproctology of Great Britain and Ireland (ACPGBI), the percentage of postoperative complications in patients after RPC-IPAA due to UC is 22.1–24.4% [7]. Early complications include e.g.: septic complications, ileal pouch--anal anastomotic leaks, anastomotic stenosis, or bleeding from the anastomosis and the ileal pouch [7].

Late complications following restorative proctocolectomy develop in 30–40% of patients. These include sexual function disorders, impaired sphincter function, including impaired gas/stool discrimination, intermittent fecal incontinence, and ileal pouch inflammation [8, 9].

The incidence of sexual function disorders in patients after RPC-IPAA is estimated at 20%. The most common complications related to the sexual life include dyspareunia, erectile dysfunction, and retrograde ejaculation [2, 3, 8].

The causes of post-operative sexual function disorders are considered to be secondary to the damage to pelvic nerve plexi occurring in the course of proctectomy as well as to post-operative adhesions or psychological factors [4, 10]. Problems related to the ileal pouch functioning, such as pouch inflammation, may also reduce the quality of sexual life in patients [4].

The goal of this study work is to assess the quality of sexual life and the sexual activity in patients having undergone the RPC-IPAA surgery at the General and Colorectal Surgery Clinic of the Medical University of Lodz.

MATERIALS AND METHODS

Patients aged 19–79 having undergone RPC-IPAA surgeries at the General and Colorectal Surgery Clinic of the Medical University of Lodz in years 2010–2019 were qualified for the study.

The study group consisted of patients treated for UC and FAP. A total of 96 patients were qualified, albeit the consent to participate in the survey was obtained only from 30 patients. A vast majority of surgeries had been performed after more than 10 years of disease duration (60%, n = 18), and the intestinal reservoir had been functioning for over a year at the time of the examination.

Patients received surveys either in person or by letter following a telephone call and a written consent procedure, as confirmed in the questionnaire form. The study was approved by the local Bioethics Committee.

In this study, we evaluated the quality of sexual life and sexual activity in RPC-IPAA patients using our pre-defined, proprietary survey. The questionnaire consisted of 50 questions regarding the patient's social and mental condition, medical history, and previous treatment as well as the quality of sexual life and sexual activity before and after surgery.

The quality of sexual life was assessed using a 5-grade scale: very low, low, medium, high, and very high. The survey also assessed the impact of steroids being taken for a minimum of 3 months prior to surgery on the sexual activity and quality of sexual life of patients after RPC-IPAA.

Tab. I. Characteristics of patients participating in the study (n = 30).

Patient age	19–79 years (median 49)
Permanent sexual relationship	25 (83%)
Reason for surgery: · UC, · FAP, · Other.	 24 (80%) 5 (16.6%) 1 (3.3%)
>10 years after the diagnosis of UC	18 (60%)
> 1 year since RPC-IPAA	27 (90%)
> 3 months of corticosteroids use prior to RPC-IPAA	19 (63.3%)
Septic complications following surgery, i.e. ileal pouch leak, pelvic abscesses	4 (3.3%)
Other complications, i.e. hemorrhagic shock, allergies to medications, dehydration	15 (50%)

Tab. II. Analysis of the study results regarding the sexual activity and the quality of sexual life of patients after RPC-IPAA.

	Before surgery			**After surgery**		
	*Very low and low**	*Average**	Very high and high*	Very low and low*	Average*	Very high and high*
Sexual activity (P = 0.05)	13% (4)	40% (12)	46% (14)	36% (11)	40% (12)	23% (7)
Quality of sexual life (P = 0.02)	10% (3)	40% (12)	50% (15)	33% (10)	43% (13)	23% (7)
Comfort during intimate activities (P = 0.02)	6.7% (2)	16.7% (5)	76.7% (23)	33.3% (10)	16.7% (5)	50% (15)
Ease of achieving orgasm after the treatment (P = 0.03)	3.3% (1)	26.7% (8)	70% (21)	26.7% (8)	33.3% (10)	40% (12)
Sexual activity in patients receiving corticosteroids at a total dose of > 15 g before the treatment (P = 0.07)	15.7% (3)	37% (7)	47.3% (9)	36.8% (7)	47% (9)	15.7% (3)
Quality of sexual life in patients receiving corticosteroids at a total dose of > 15 g before the treatment (P = 0.04)	15.7% (3)	31.5% (6)	52.6% (10)	31.5% (6)	42.1% (8)	15.78% (3)

*according to a proprietary questionnaire developed by the team of the General and Colorectal Surgery Clinic. Numbers in parentheses "()" represent the total number of responders.

Statistical analysis was carried out using the chi-square test with Yates' correction and the Fisher's exact probability test. The analyses were carried out using the Statistica 13.1 Software. Statistical significance level was set at $P \leq 0.05$.

RESULTS

The group of 30 subjects who provided their consent to participate consisted of 21 men and 9 women.

UC was the most common cause for surgery (80%, n = 24). In addition, 16.6% of study group patients (n = 5) underwent the RPC-IPAA surgery due to FAP and one patient (3.3%) underwent surgery due to synchronous colorectal cancer. Nineteen subjects (63.3%) confirmed the use of corticosteroids prior to surgery. In 4 other patients (13.3%), septic complications developed during the postoperative period as manifested by ileal pouch-anal anastomosis leaks and pelvic abscesses. In 15 (50%) patients, other postoperative complications such as dehydration, allergies to medications (most frequently ciprofloxacin and metronidazole), or symptoms of subileus were observed. Complications are listed in Tab. I.

Fourteen patients (46%) rated their sexual activity before surgery as high or very high whereas 13% of patients (n = 4) rated it as low or very low. The remaining subjects rated their sexual activity before operational treatment as average (40%, n = 12). After surgery, 23% of patients (n = 7) rated their sexual activity as high or very high while 36.6% (n = 11) rated it as low or very low (P = 0.05).

Fifteen patients (50%) rated the quality of their sexual life before surgery as high or very high whereas 10% of patients (n = 3) rated it as low or very low (P = 0.02). The quality of sexual life after surgery was rated as high or very high by 23% of responders (n = 7) as compared to 33% of responders (n = 10) who rated it as low or very low (P = 0.02).

Nineteen patients (63.3%) had received corticosteroids at a total dose of > 15 g prior to surgery. Seven out of these subjects (36.8%) rated their sexual activity after surgery as low or very low. For comparison, low or very low sexual activity prior to surgery was reported by 3 patients (15.7%). The quality of sexual life before and after surgery was also assessed in the study group. Low or very low quality of sexual life was reported by 3 patients (15.7%) prior to surgery as compared to 6 patients (31.5%) after surgery. The results are listed in Tab. II.

Tab. III. Analysis of study outcomes in patients after RPC-IPAA.

	Before surgery	After surgery
Dyspareunia (P = 0.5)	10% (3)	13.3% (4)
Difficulty with achieving and maintaining erection (P = 0.02)	4.76% (1)	33.3% (7)
Pharmacological agents needed to achieve erection (P = 0.008)	0%	33% (7)
Pharmacological agents needed to increase sex drive in men (P = 0.05)	0%	19% (4)
Sensory disorder within the intimate region (5 subjects did not provide an answer to this question)	–	16% (4)
The need for intimate moisturizers being used in women (P = 0.5)	0%	11% (1)
Constipation (no answer provided by 5 subjects)	–	8% (2)
Fecal incontinence (no answer provided by 5 subjects)	–	48% (12)

*according to a proprietary questionnaire developed by the team of the General and Colorectal Surgery Clinic.

Numbers in parentheses "()" represent the total number of responders.

Prior to the surgical treatment, dyspareunia was present in 10% of subjects (n = 3). After the treatment, pain during intercourse was reported by 13% of patients (n = 4).

None of the women within the study group had used artificial moisturization of intimate places prior to the intercourse before surgery. After surgery only 1 (11%) woman started using products of this type (11%). The difference, however, was not statistically significant (P = 0.5).

None of the men within the study group had used pharmacological aids to achieve erection prior to surgery. After surgery, the need for the use of such aids was declared by 33% of male responders (n = 7) (P = 0.008).

Sixteen percent of patients reported sensory disorder within the intimate region (n = 4). Five responders provided no answer to this question. Eight percent (n = 2) of subjects complained about constipation after surgery, while the decal incontinence following RPC-IPAA was reported by 48% of subjects (n = 12). Urinary incontinence developed in 1 person after the procedure (4%).

The above results are listed in Tab. III.

DISCUSSION

RPC-IPAA, as introduced by Parks and Nicholls in 1978, has become became the gold standard for the treatment of patients with UC and FAP [5, 11]. Both UC and FAP are most commonly diagnosed in patients of reproductive age. Sexual activity and the quality of sexual life are very important for these patients, particularly following the RPC-IPAA surgery. In our study population, sexual activity of patients deteriorated following RPC-IPAA. Only 23% of patients declared their sexual activity to be high or very high As compared to 46% of subjects reporting high or very high sexual activity prior to surgery. The quality of sexual life before surgery was assessed to be high or very high by 50% of patients as compared to only 23% after surgery (P = 0.02). The deterioration in sexual activity and quality of life as observed in our study patients following the surgical treatment might be associated with late qualification for surgical treatment, and thus with more permanent inflammatory changes and an excessively long period of corticosteroid use. Therefore, the operating conditions were more difficult in such patients. This in turn increased the risk of damage to nerve plexi within the presacral region as well as septic complications.

According to Sunde et al., the quality of sexual life after RPC-IPAA remains relatively constant [4, 12–17]. According to other authors, it might even improve [15, 16, 20]. The improvement in sexual life following surgery is explained by the overall improvement of health and better control of bowel movements following surgery. According to a review by Wax et al., 16–50% of women rated their overall satisfaction with their sexual life to be better following RPC-IPAA as compared to before surgery. On the other hand, 9–26% of female patients reported reduced satisfaction with their sexual life following surgery [19]. The difference between the results obtained by authors mentioned above and the results obtained in our study may be due to multiple factors. Firstly, our study group consisted of only 30 patients. The other subjects who qualified for the study did not provide their consent to complete the survey. Moreover, patients undergoing surgical treatment at our clinic often present with long disease duration which negatively affects their condition in the pre- and post-operative period.

According to Gklavas et al, proctocolecomy in patients with inflammatory bowel disease had no negative effect on sexual function. The authors highlight that the surgeries taken into account in the study had been performed by an experienced colorectal surgeon. In addition, they highlight the importance of the surgical technique and the cruciality of nerve plexi within the pre--sacral region being spared [20].

In our study group, both sexual activity and the quality of sexual life following the RPC-IPAA procedure was worse in patients who had received corticosteroids for more than 3 months prior to surgery. The results are presented in Table II. Similar conclusions were reached by Yoshida et al., who found that the age of above 40 and corticosteroid therapy before surgery significantly worsened the sexual activity after RPC-IPAA [2]. In addition, worse ratings of sexual activity and quality of sexual life were provided by patients who had undergone surgery due to UC and experienced septic complications secondary to the ileal pouch leaks [2].

The risk of dyspareunia following RPC-IPAA is estimated at 7–38% [19, 21–24]. In our study, we did not observe a statistically significant increase in dyspareunia after surgery (10% *vs* 13.3%) (P = 0.5). Farouk et al. reported that the prevalence of dyspareunia increased with time elapsing since the procedure. Dyspareunia was reported by 8% of responders one year after the RPC-IPAA and 11% of responders 12 years after surgery [18]. Similar conclusions were reached by Counihan et al. who reported an increase in the prevalence of dyspareunia in females from 5% before surgery to 15% after surgery, as well as by Tiainen et al., who observed an increase from 11.4% before RPC-IPAA to 22% after RPC-IPAA in patients of both genders [25, 26]. The incidence

of erectile dysfunction in male patients following RPC-IPAA is estimated at 0–26% [8, 15, 26, 27]. None of the men within the study group had used pharmacological aids to achieve erection prior to surgery. This result can be attributed to the small number of subjects participating in our study. After the procedure, the need to use such pharmacological aids was reported by 33% of patients (n = 7). Alloca et al. assessed the risk of sexual function worsening and erectile disorders to be as high as 26%. They believe that the risk increases in direct proportion to the patient's age. Subjects under the age of 24 reported no sexual function disorders after surgery [27]. Notably, sildenafil was effective in as many as 79% of male patients with erectile dysfunction following surgery [28].

In a similar manner, Harnoy et al. observed worsening of sexual function in up to 50% of women and erectile dysfunction in 25% of men after RPC-IPAA [29].

Also, Tiainen et al. reported that 14.6% of men presented with erectile dysfunction after RPC-IPAA [30]. None of these subjects reported any such complaints prior to the treatment.

SUMMARY

Sexual activity and the quality of sexual life are important aspects of life, especially in younger patients. In this study, we observed a deterioration in the quality of sexual life and sexual activity of individuals after RPC-IPAA, particularly in those who had been receiving corticosteroids prior to the procedure. We could not observe a statistically significant increase in the prevalence of dyspareunia after surgery. Therefore, it is important to discuss the possible postoperative complications, including the impact surgery may have on the sexual life, with patients being qualified for RPC-IPAA procedures.

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