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QUALITY OF LIFE IN PREGNANT WOMEN WITH CHRONIC SLOW TRANSIT CONSTIPATION

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Summary

A significant number of pregnant women suffer from constipation, which tends to worsen as pregnancy progresses. Chronic constipation worsens the course of pregnancy and may require emergency surgery with possible negative consequences for the fetus and the woman. The negative impact of constipation during pregnancy can be reduced by eliminating the manifestation of symptoms before it. The recommended surgical procedure is total colectomy.

The aim of this study was to evaluate the quality of life (QoL) of pregnant women with chronic slow transit constipation (CSTC) after conservative versus surgical treatment.

Method: Between 2017 and 2022, a comprehensive study was conducted on 46 women with CSTC that was resistant to conservative treatment. Among them, 22 patients underwent surgery (group M), while 24 patients received conservative treatment (group C). Quality of life was assessed using the SF-36 scale before treatment, 90 days after treatment initiation, and during each trimester of pregnancy.

Results: After treatment, physical QoL was comparable between groups (47.92 ± 3.7 vs. 45.99 ± 4.71), whereas mental QoL was significantly higher in the surgical group (50.59 ± 2.79 vs. 46.94 ± 4.85 , $p = 0.009$). In the second trimester, the surgical group had significantly higher physical QoL than the non-surgical group (43.9 ± 2.4 vs. 40.5 ± 2.6 , $p = 0.029$). In the third trimester, both physical (39.3 ± 3.6 vs. 29.7 ± 5.1 , $p = 0.003$) and mental (51.7 ± 2.5 vs. 40.5 ± 6.3 , $p = 0.003$) QoL scores were significantly higher in the surgical group.

Conclusions: Compared with conservative therapy, colectomy improves the quality of life of pregnant women with CSTC, suggesting that it is a safe and effective treatment option before pregnancy.

Key words: Chronic Slow Transit Constipation; Pregnancy; Quality of Life; Colectomy; Conservative Therapy.

Introduction

Between 11 and 40 % of women suffer from constipation during pregnancy [1, 2, 3], which tends to worsen as the pregnancy progresses [2]. Constipation may occur for the first time or already be present as a chronic slow transit type prior to pregnancy. The diagnosis of the latter is made based on the Rome IV criteria and requires two or more of the following symptoms [4]:

- Straining on more than 25 % of defecations.
- Lumpy or hard stools (BSFS type 1 or 2) on more than 25 % of defecations.
- Sensation of incomplete evacuation on more than one-fourth (25 %) of defecations.
- Sensation of anorectal obstruction or blockage on more than one-fourth (25 %) of defecations.
- Manual maneuvers to facilitate evacuation on more than one-fourth (25 %) of defecations.
- Fewer than three spontaneous bowel movements per week.

Chronic constipation worsens the course of pregnancy and may require emergency surgery [5, 6], with the possibility of negative consequences for the fetus and the woman [7, 8]. The negative impact of constipation during pregnancy can be reduced by eliminating the manifestation of symptoms before it. The recommended surgical intervention is total colectomy [9, 10]. In addition, colectomy has been shown to have no effect on a woman's fertility [11, 12].

Currently, it is unclear whether colectomy is necessary for women considering pregnancy who have slow transit constipation that does not respond to conservative treatment.

Aim: To assess the quality of life scores in pregnant women with chronic slow transit constipation after conservative versus surgical treatment.

Materials and methods

Between 2017 and 2022, a comprehensive study was conducted on 46 women who were planning to become pregnant and had slow transit constipation (CSTC) that was resistant to previous conservative treatment. The diagnosis of CSTC was made according to the Rome IV criteria [3]. 22 patients (47.8 %) underwent surgical treatment and were referred to as the main group (group M). 24 (52.2 %) patients refused surgery and received conservative treatment, which was the comparison group (group C). In group M, patients underwent open (19-86.4 %) or laparoscopic (3-13.6 %) colectomy before pregnancy, including colectomy with ileorectal anastomosis in 17 (77.3 %) women, colectomy with low rectal resection and ileorectocolostomy in 2 (9.1 %), and laparoscopic colectomy with ileorectocolostomy in 3 (13.6 %) patients.

Quality of life (QoL) was assessed using the SF-36 scale before treatment, 90 days after treatment initiation, and during each trimester of pregnancy.

The efficacy of constipation treatment was evaluated based on the bowel movement interval, the type of stool according to the Bristol scale, and the passage of radiographic contrast markers before and after pregnancy.

Reducing the interval between bowel movements to once in 1-2 days and changing the type of stool to 3/4 types were signs of effective conservative treatment [13].

In both groups, patients did not differ statistically in mean age: -33.9 ± 6.7 years vs. 32.0 ± 6.0 years ($p = 0.127$), body mass index -22.1 ± 2.4 kg/m² vs. 21.9 ± 2.6 kg/m² ($p = 0.214$), respectively, in groups M and C. Taking into account the state of their somatic and reproductive systems, they had no contraindications for pregnancy.

Statistical analysis was performed with IBM SPSS Statistics, V 22. Descriptive statistics were performed. Data were assessed for normality using the Shapiro-Wilk test. Means are presented as $M \pm SD$. Categorical data were expressed as numbers (%). Comparison of means for quantitative variables was performed using the Mann-Whitney U test. Relative values were compared using the Pearson chi-squared test. The null hypothesis of equality of variables was rejected at $p < 0.05$.

Results

In group M, two women had children before treatment. One woman had two children, one of whom was born

before the onset of constipation symptoms. In group C, all children were born after the onset of constipation (Table 1). All children were conceived and born naturally. One woman in group M had a miscarriage.

2 (9.0 %) women in group M and 3 (12.5 %) women in group C showed worsening of constipation symptoms during pregnancy before treatment ($p = 0.711$).

A number of women refused pregnancy for reasons such as constipation and fear of worsening symptoms: 6 (27.3 %) patients in group M and 5 (20.8 %) in group C ($p = 0.734$). Groups M and C were not statistically different with respect to the interval to defecation, the passage of radiographic markers, and previous treatment, all $p > 0.05$ (Table 1).

During the study period, 8 (36.4 %) women in group M became pregnant, whereas 14 (64.6 %) did not become pregnant, with 4 (18.18 %) of them refusing pregnancy plans for personal reasons (Fig. 1).

Table 1.

Comparative characteristics of group M and group C before treatment

Indicator	Group M n=22		Group C n=24		p
	Abs.	%	Abs.	%	
Successful pregnancies	2	9,0	3	12,5	0,711
History of miscarriage	1	4,5	0	0,0	0,965
Refusal of pregnancy	6	27,3	5	20,8	0,734
Increased severity of constipation symptoms during pregnancy	2	9,0	3	12,5	0,711
Interval between defecation before treatment, day, $M \pm SD$	6,8±1,8		7,4±2,4		0,403
Passage of x-ray contrast markers before treatment, day, $M \pm SD$	10,9±3,8		10,2±3,4		0,842
High-fiber diet	21	95,45	22	91,6	0.613
Pressure on the abdominal cavity to facilitate defecation	20	90,9	23	95,8	0.51
Use of pharmacological agents	21	95,45	24	100	0.301
Use of cleansing enemas	8	36,36	10	41,66	0.72

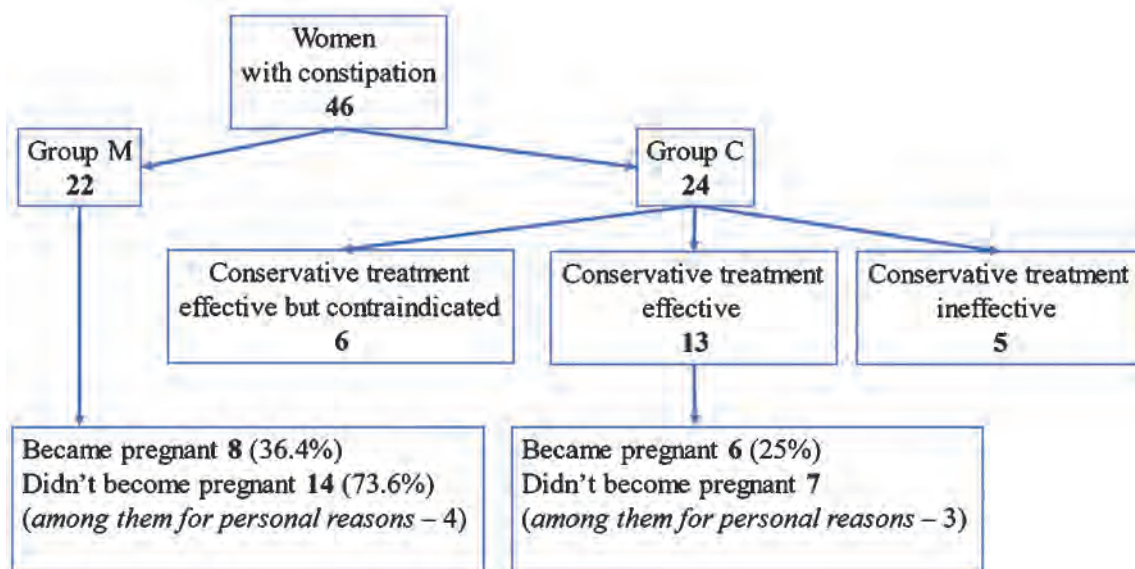


Fig. 1. Frequency of pregnancy in group M (after surgery) and group C (depending on the results of conservative therapy).

In group C, conservative therapy was found to be effective in 19 women. However, the selected schemes had direct pregnancy-related contraindications in six women. They decided to postpone pregnancy and continue conservative treatment for constipation. Of the 13 women who underwent effective conservative treatment without pregnancy-related contraindications, six became pregnant. 7 (29.16 %) women did not become pregnant, with 3 (12.5 %) of them refusing to plan a pregnancy for personal reasons (Figure 1).

Five women failed to obtain effective treatment. These women had a high risk of maintaining or increasing the

manifestations of constipation during pregnancy, resulting in a significant worsening in quality of life.

Group M and group C did not statistically differ in average values of physical (35.15 ± 6.31 vs. 34.41 ± 6.14), $p = 0.700$, and psychological (35.28 ± 9.79 vs. 35.59 ± 8.74), $p = 0.954$ components of QoL before treatment, respectively (Fig. 2, 3; Table 2).

The difference in the psychological component of health was observed due to the impossibility of choosing effective schemes for five women after treatment initiation (Fig. 1; Table 2).

Table 2

Comparison of group M and group C after treatment

Indicator			Group O N=22	Group C N=24	P
Successful pregnancies, n (%)			8 (36,36)	6 (25,0)	0,900
Preeclampsia, n (%)			1 (12,5)	1 (16,6)	0,825
SF-36					
Norm					
I trimester	PCS	48-61	48,21±3,46	49,33±2,97	0,491
	MCS	51-58	50,13±3,14	51,69±2,06	0,345
II trimester	PCS	39-55	43,85±2,35	40,53±2,60	0,029
	MCS	49-62	49,30±5,51	48,79±1,76	0,142
III trimester	PCS	37,5-47,5	39,25±3,6	29,69±5,06	0,003
	MCS	49,5-66	51,66±2,54	40,53±6,26	0,003
Before pregnancy (before therapy)	PCS	-	35,15±6,31	34,41±6,14	0,700
	MCS	-	35,28±9,79	35,59±8,74	0,954
Before pregnancy (after therapy)	PCS	-	47,92±3,7	45,99±4,71	0,440
	MCS	-	50,59±2,79	46,94±4,85	0,009
Interval between defecation 90 days after treatment, day (M±SD)			Everyday	2.31±1.73	
Interval between defecation in pregnant women, day (M±SD)					
I trimester			Everyday	2.16±1.25	
II trimester			Everyday	2.56±1.98	
III trimester			Everyday	4.44±2.87	
The average interval between defecation after pregnancy			Everyday	2.56±1.98	

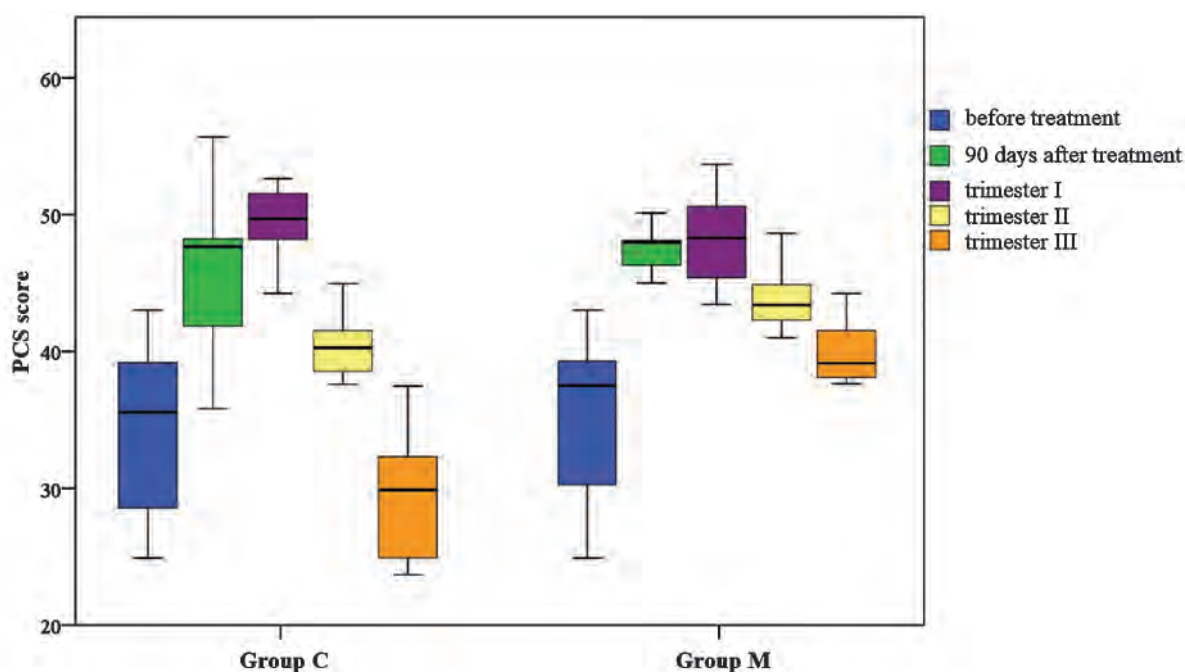


Fig. 2. Median and interquartile range of the PCS for different survey terms in the study groups

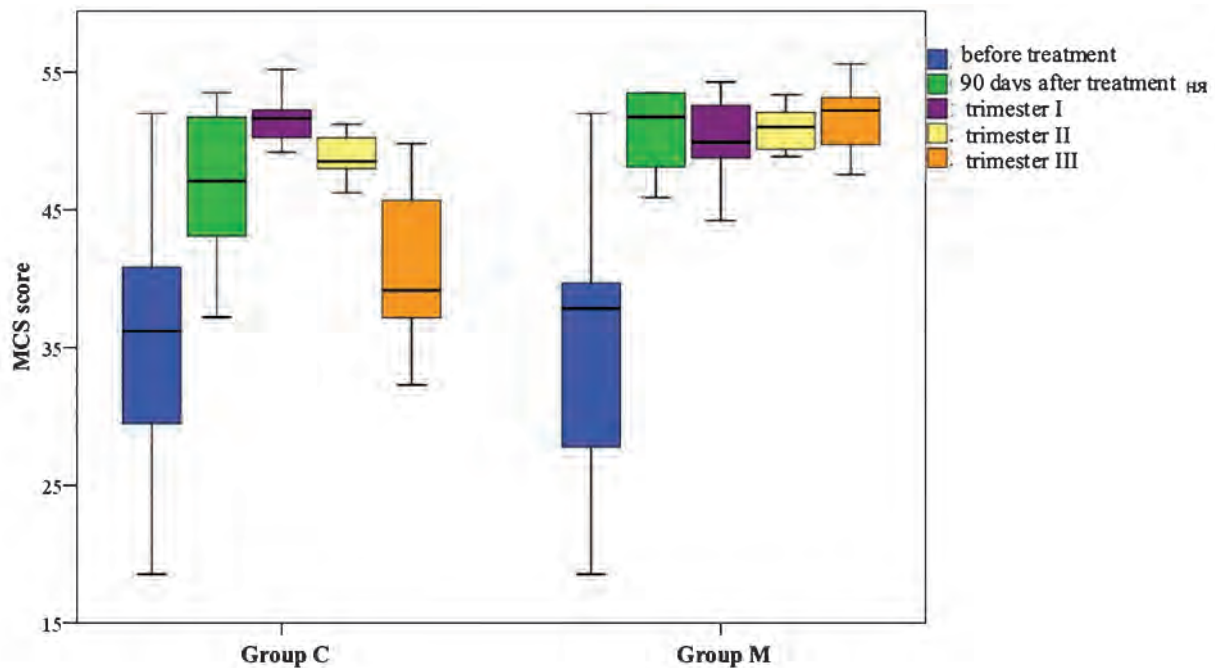


Fig. 3. Median and interquartile range of the MCS for different periods of survey in the study groups.

In group M, 8 (36.3 %) women had successful pregnancies after surgery. Of note, one woman had two successful pregnancies. All eight women had an uncomplicated pregnancy. Three children were born by cesarean section. The other children were born spontaneously.

In group C, 6 (25 %) women had no abnormalities during pregnancy. One child was born by cesarean section.

Gestosis was observed in one woman from each group, indicating that the groups were comparable on this indicator ($p = 0.825$).

After treatment, physical QoL was 47.92 ± 3.7 in group M and 45.99 ± 4.71 in group C. These values were found to be comparable ($p = 0.44$). However, women showed significantly higher mental health indicators (50.59 ± 2.79 after surgery vs. 46.94 ± 4.85 after conservative treatment ($p = 0.009$)).

There was no difference in physical ($p = 0.491$) and psychological ($p = 0.345$) QoL in both groups in the first trimester.

In the second trimester, there was a significant difference in physical QoL ($p = 0.029$).

In the third trimester, there was a significant difference between groups M and C for both health components ($p = 0.003$). At the same time, group C showed a decrease in QoL compared to the standard (Table 2).

The worsening of constipation (an increase in the interval between bowel movements from 2.16 ± 1.25 days to 2.56 ± 1.98 days) was observed in group C from the second trimester. Four women had defecation difficulties and required cleansing enemas for up to 4.44 ± 2.87 days in the third trimester.

Discussion

The conservative management of pregnant women with CSTC is a challenging therapeutic endeavor, as the range of approved medications is severely limited due to the presence of contraindications. The first recommendation

is a high-fiber diet [14, 15, 16, 17]. The high-fiber diet resulted in a 50 % reduction in the severity of constipation compared to the untreated group [18]. [18]. However, a meta-analysis based on randomized controlled trials showed insufficient evidence [19].

In our study, 21 (95.5 %) patients in group M and 22 (91.6 %) patients in group C followed a high-fiber diet. This diet had a beneficial effect, but the significance of its administration was only observed in combination with pharmaceutical drugs.

Some authors recommend applying pressure to the abdominal cavity to improve the act of defecation [20]. 20 (90.9 %) women in group M and 23 (95.8 %) in group C performed this manipulation instinctively, but its effectiveness in pregnancy is questionable.

According to some studies, constipation symptoms can be relieved when the dysbiosis is eliminated. Xylooligosaccharides and probiotics are beneficial in pregnant women [21] with severe constipation because inulin and fructooligosaccharides stimulate the growth of bifidobacteria [22]. It's been shown that the microbiota of people with constipation is significantly different from the control group [23]. However, probiotic treatment always requires evidence that constipation is due to dysbiosis [24]. The mechanism of action of probiotics is related to the stimulation of the growth of bifidobacteria in dysbiosis. Probiotics don't provide an etiopathogenic treatment for chronic slow transit constipation. [25, 26]. Therefore, probiotics were not included in the treatment plan in our study.

Eight women in group M (36.36 %) and ten women in group C (41.66 %) used enemas at least twice a week to facilitate bowel movement. According to medical history, 21 (95.45 %) patients in group M and 24 (100 %) in group C used laxatives on their own, whereas only 12 (26 %) of 46 patients followed the instructions.

All patients eventually developed drug resistance. This was mainly due to the prolonged period of use. According to the drug guidelines available on the website

<https://mozdocs.kiev.ua>, the following drugs have been approved for use in pregnant women in Ukraine [9]: A06A B – contact laxatives: A06A B06 – senna glycosides; A06A C – bulk laxatives: A06A C01 – plantain seed drugs; A06A D – osmotic laxatives: A06A D11 – lactulose, and A06A D15 – macrogol.

Other drugs (prucaloprid, combinations of metal salts, zoster, sodium picosulfate, liquid paraffin, bisacodyl, and castor oil) are either directly contraindicated for use in pregnancy or lack relevant clinical studies. Although systemic absorption of laxatives is negligible [17], their use is not recommended in the literature. Stimulants are more effective than bulking agents. However, they cause more side effects [18].

As a result, the observation shows that macrogol, glycerol, and lactulose have been recommended as first-line treatments for constipation in pregnancy [14, 16, 27]. If they were ineffective, bisacodyl, sodium dokusat, or sodium picosulfate were considered to be recommended under medical supervision, despite their potential side effects. It is recommended to use only lactulose and other evidence-based drugs [28]. Lactulose proves to have an optimal efficacy of 84 % and is considered clinically safe for pregnant women [29]. Macragol has similar efficacy and comparable side effects [30].

Conservative treatment was selected based on the individual's response to therapy and approval for its use in Ukraine. Five women did not receive adequate conservative therapy. Effective treatment was chosen for six women. However, it was not acceptable during pregnancy.

CSTC had a negative impact on both psychological and physical health. Our study found that PCS was 35.15 ± 6.31 in group M and 34.41 ± 6.14 in group C, with MCS of 35.28 ± 9.79 and 35.59 ± 8.74 , respectively, which is consistent with previous findings [31, 32]. After treatment, group M had a physical QoL of 47.92 ± 3.7 compared to 45.99 ± 4.71 in group C, indicating comparable outcomes ($p=0.44$). However, women after surgery showed significantly higher mental health scores (50.59 ± 2.79 vs. 46.94 ± 4.85 , $p = 0.009$). In our opinion, the difference in mental health scores results from the need to take medications that have a slow onset of action, as opposed to surgery.

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The women who did not experience constipation during pregnancy showed changes in both their physical and psychological health. Specifically, the average physical health score decreased while the psychological health score increased with each trimester [33]. Based on the data, there was no statistically significant difference in quality of life between pregnant women in group M and women without constipation symptoms.

In group C, the physical component of health decreased significantly in the second trimester (40.53 ± 2.60) and both components (PCS= 29.69 ± 5.06 , MCS= 40.53 ± 6.26) in the third trimester. At the same time, the mean PCS score decrease and MCS score rises consistently with the course of pregnancy. In addition, the scores were lower from the second trimester compared to literature data for a similar contingent of women without constipation [33]. According to several authors, this may be related to both a change in the hormonal background and the physical pressure of the uterus on the colon, especially in the third trimester [1, 2, 3], thus negating the positive effects of conservative therapy on peristalsis.

Conservative therapy has limitations in its application, as previously mentioned. In addition, conservative therapy proved ineffective in five cases. According to our results, colectomy significantly improves the quality of life of women with severe CSTC who are planning to become pregnant [7].

Limitations of the research: Outpatient treatment makes it impossible to monitor compliance with all recommendations for the comparison group. The lack of pregnancy in both groups may be related to male reproductive system disorders, financial difficulties or changes in family status, as well as insufficient time since treatment. It was not possible to use all available conservative treatment methods because some drugs have not yet been officially approved in Ukraine.

Conclusions

Compared with conservative therapy, colectomy improves the quality of life of pregnant women with CSTC, suggesting that it is a safe and effective treatment option before pregnancy.

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ЯКІСТЬ ЖИТТЯ У ВАГІТНИХ З ХРОНІЧНИМИ ПОВІЛЬНО-ТРАНЗИТОРНИМИ ЗАКРЕПАМИ

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Резюме.

Значна кількість вагітних жінок страждає від закрепів, які посилюються з прогресуванням вагітності. Закрепи можуть маніфестувати вперше або існувати до вагітності як хронічний повільно-транзиторний закреп. Хронічні закрепи погіршують перебіг вагітності та можуть вимагати екстреного хірургічного втручання з можливістю негативних наслідків для плода та жінки. Негативний вплив закрепу при вагітності можна зменшити, усунувши прояв симптомів до нього. Рекомендованим хірургічним втручанням є тотальна колектомія.

Мета дослідження: Оцінити якість життя у вагітних жінок із хронічним повільно- транзитним закрепом після консервативного лікування порівняно з хірургічним.

Матеріали і методи: Впродовж 2017-2022 рр. було проведено всебічне дослідження за участю 46 жінок, які мали хронічний повільно-транзитний закріп, резистентний до консервативного лікування. З них 22 хворих прооперовано (хірургічна група), а 24 хворим проведено консервативне лікування (консервативна група). Якість життя оцінювали за шкалою SF-36 до лікування, через 90 днів після початку лікування та протягом кожного триместру вагітності.

Результати дослідження. Після лікування фізична якість життя була порівнянною ($47,92 \pm 3,7$ проти $45,99 \pm 4,71$) між групами, тоді як психічна якість життя була значно вищою в хірургічній групі ($50,59 \pm 2,79$ проти $46,94 \pm 4,85$, $p = 0,009$). У другому триместрі хірургічна група мала значно вищу фізичну якість життя порівняно з групою консервативного лікування ($43,9 \pm 2,4$ проти $40,5 \pm 2,6$, $p = 0,029$). У третьому триместрі як фізичні ($39,3 \pm 3,6$ проти $29,7 \pm 5,1$, $p = 0,003$), так і психічні ($51,7 \pm 2,5$ проти $40,5 \pm 6,3$, $p = 0,003$) показники ЯЖ були значно вищими в хірургічній групі.

Висновки. Порівняно з консервативною терапією, колектомія покращує якість життя вагітних жінок із хронічним повільним транзитним закрепом, що свідчить про те, що це є безпечний та ефективний варіант лікування до вагітності.

Ключові слова: хронічний повільно-транзитний закріп; вагітність; якість життя; колектомія; консервативна терапія.

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