

Surgical and/or conservative treatment improves quality of life (EHP-30) in patients with endometriosis

Chirurgická a/nebo konzervativní léčba zlepšuje kvalitu života (EHP-30) u pacientek s endometriózou

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Summary: Aim: To investigate the quality of life of women with endometriosis before treatment and 3 months after the start of surgical and/or conservative treatment. **Sample and methodology:** The sample comprised of 38 patients, of whom 26 underwent surgical treatment, 6 had pharmacological treatment, and 6 had both surgical and pharmacological treatment. The Endometriosis Health Profile (EHP-30) questionnaire in the Czech version and the Numeric Rating Scale (NRS) were used to assess quality of life. The questionnaires were completed before treatment and 3 months into the treatment. **Results and discussion:** When comparing quality of life with the EHP-30 questionnaire, 3 months after the start of treatment, significantly better quality of life scores were found in all domains except the domain "Infertility." Statistically significant improvement was observed in the domains of "Control and powerlessness," "Emotional well-being," and "Pain" ($P < 0.0001$). Pain assessment using NRS showed subjective improvement in pain during menstruation, outside menstruation, during intercourse, micturition, and defecation. Statistically significant improvement was reported in pain during menstruation and outside menstruation ($P < 0.0001$). **Conclusion:** Treatment of endometriosis improves the quality of life and also leads to a subjective reduction of pain intensity as one of the main symptoms of the disease.

Key words: endometriosis – quality of life – EHP-30 – pain – Numeric Rating Scale – treatment

Souhrn: Cíl: Zjistit kvalitu života žen trpících endometriózou před započátkem léčby a 3 měsíce po jejím zahájení. **Soubor a metodika:** Třicet osm pacientek, z nichž 26 podstoupilo chirurgickou léčbu, 6 pouze farmakologickou a 6 chirurgickou i farmakologickou léčbu. Pro hodnocení kvality života byl použit dotazník Endometriosis Health Profile (EHP-30) v české verzi a numerická škála měření bolesti (NRS – Numeric Rating Scale). Dotazník byl ženám předkládán před zahájením léčby a následně za 3 měsíce. **Výsledky a diskuze:** Při porovnání kvality života dotazníkem EHP-30 bylo za 3 měsíce po zahájení léčby zjištěno signifikantně lepší hodnocení kvality života ve všech doménách kromě domény „neplodnost“. Statisticky významné zlepšení bylo zaznamenáno v doménách „kontrola a bezmoc“, „emocionální pohoda“ a „bolest“ ($p < 0,0001$). Hodnocení bolesti pomocí NRS ukázalo subjektivní zlepšení bolesti při menstruaci, mimo menstruaci, při pohlavním styku, při mikci i při defekaci. Ke statisticky významnému zlepšení došlo u bolesti při menstruaci a mimo menstruaci ($p < 0,0001$). **Závěr:** Léčba endometriózy zlepšuje kvalitu života a vede také k subjektivnímu snížení intenzity bolesti jako jednoho z hlavních příznaků.

Klíčová slova: endometrióza – kvalita života – EHP-30 – bolest – numerická škála bolesti – léčba

Introduction

Endometriosis is defined as the presence of endometrial tissue outside the uterine cavity. The typical sites of occurrence are the peritoneum, ovary, and rectovaginal

septum [1,2]. It is one of the most common gynaecological diseases, affecting up to 10% of women of reproductive age. The manifestations of endometriosis can vary from infertility in asymptomatic

women to debilitating chronic pelvic pain, dysmenorrhea, dyspareunia, dysuria, and dyschezia [3]. These symptoms can negatively affect woman's physical, social, and psychological well-

-being and significantly affect women's quality of life in all areas [4,5].

In international studies, women with endometriosis have been reported to have a significant impairment in quality of life due to pelvic pain compared to healthy women. Pain can affect the woman's ability to carry out daily activities, work activities, and the disease can have a negative impact on sexual life, social relationships, and sleep quality. Living with severe cyclical or continuous pelvic pain, or the threat of its return, can lead to anxiety and depression. There is also notable economic impact of the disease on society, comparable to other chronic diseases such as diabetes mellitus or Crohn's disease [6–13].

Diagnosis of endometriosis can be challenging, often leading to delayed treatment [3]. The difficulty in making the correct diagnosis is related to the non-specific symptoms of patients and the wide differential diagnosis. For these reasons, there can be a delay in diagnosis of up to several years [14]. The average time of the diagnosis in women with endometriosis ranges from 4 to 11 years, with 65% of women misdiagnosed initially [15]. Therapy includes pharmacological and surgical treatments, but none of the available therapies guarantee full recovery. Recurrence of the disease is up to 70% [16]. Therapy aims to relieve the symptoms, restore fertility, improve quality of life, and prevent recurrence of the disease. The severity of the disease often does not correlate with subjective complaints, so it is recommended to complement the assessment of disease severity with an assessment of quality of life [17,18]. To assess the quality of life of women with endometriosis, it is possible to use the standardised Endometriosis Health Profile (EHP-30) questionnaire developed by Jones et al. It is a specific scale for assessing health-related quality of life (HRQoL), which was developed based on interviews with endometriosis patients. This questionnaire can be used to assess the impact of endometriosis on

the quality of life of patients and it is also a suitable tool for assessing the efficacy of treatment on the health status of patients with endometriosis [19]. In clinical practice, routine assessment of HRQoL in women with endometriosis is essential for both healthcare providers and patients [20].

Sample and methodology

The sample comprised of 38 patients who underwent treatment for endometriosis. The study was conducted between 2020–2023 at the Gynaecology and Obstetrics Clinic at the University Hospital Olomouc and at the Gynaecology and Obstetrics Department of the Hospital in Frýdek Místek, after being approved by the Ethics Committee of the Faculty of Medicine of the Palacky University Olomouc and the University Hospital Olomouc on 16 September 2019, and by the Ethics Committee of the Hospital in Frýdek Místek on 28 April 2022 with the consent of the above mentioned healthcare institutions. The inclusion criteria were age 18–49 years, diagnosis of endometriosis, initiation of treatment, and consent to participate in the study. The study used a prospective longitudinal design with two phases, where respondents completed a validated Czech version of the EHP-30 questionnaire and the Numeric Rating Scale (NRS) before the start of treatment and then 3 months after the start of treatment. Respondents were approached directly by the researcher or the examining physician at an outpatient clinic or an endometriosis clinic of the healthcare facility. They were instructed how to complete the questionnaire. A total of 170 questionnaires was distributed to patients with suspected endometriosis; however, in the end only 38 patients had been confirmed with endometriosis, started the treatment, consented to be included in the study, and completed both questionnaires correctly.

The EHP-30 consists of two parts: the core questionnaire containing 30 items

covering five domains (Pain, Pain control and powerlessness, Emotional well-being, Social support and Self-image) and a modular questionnaire containing 23 items divided into six domains (Work, Relationships with child/children, Sexual relationships, Medical profession, Treatment, and Infertility). Each questionnaire item is rated on a Likert scale of 0–4, where 0 = never, 1 = rarely, 2 = sometimes, 3 = often, and 4 = always. The individual scales were then converted into an overall score that ranges from 0 (the best possible outcome) to 100 (the worst possible outcome) [19]. The Numeric Rating Scale (NRS) was used to assess pain. The scale uses a numerical representation (0 = no pain, 10 = the worst pain) [21]. Respondents were asked to assess pain during menstruation, outside menstruation, during intercourse, urination, and defecation.

The collected data were evaluated in accordance with recommendations in the *Scoring Algorithms, Dimensions and Items for the EHP Questionnaires*. The data set was described using absolute and relative frequencies, Min. and Max. values, means, medians, and standard deviations (SD). Among the statistical methods, the Wilcoxon test and McNemar's test were used. IBM SPSS Statistics for Windows, Version 23.0. (IBM Corp., Armonk, NY) and TIBCO STATISTICA version 13.4.0.14 software were used for statistical processing.

Results

The final cohort consisted of 38 patients with the mean age of 34.9 years, where the youngest patient was 21 years old and the oldest was 49. Other follow-up data included mean weight 65.5 kg (47–91, median 62.5 kg), mean height 166.7 cm (151–180, median 167.5 cm), and mean BMI 23.5 kg/m² (17.9–33.4, median 22.2 kg/m²). The mean age of menarche was 12.63 years and the first symptoms of endometriosis appeared in these women at a mean age of 31.2 years. The mean diagnostic delay

Tab. 1. Basic somatic characteristics.

Tab. 1. Základní somatické charakteristiky.

Basic somatic characteristics	Average	SD	Min.	Max.	Median
Age	34.92	6.80	21.00	49.00	35.50
Weight	65.53	13.05	47.00	91.00	62.50
Height	166.71	6.17	151.00	180.00	167.50
BMI	23.52	4.18	17.90	33.43	22.23
Menarche	12.63	1.40	10.00	17.00	12.00
Age at first symptoms	31.24	7.24	14.00	45.00	30.00
Time between first symptoms and diagnosis (months)	21.29	35.15	1.00	204.00	10.50

BMI – body mass index, Max. – maximum, Min. – minimum, SD – standard deviation

Tab. 2. Basic demographic characteristics.

Tab. 2. Základní demografické charakteristiky.

	Absolute frequency	Relative frequency	
Number of pregnancies	0	17	44.7%
	1	6	15.8%
	2	10	26.3%
	3	5	13.2%
Number of births	0	21	55.3%
	1	4	10.5%
	2	13	34.2%
Number of miscarriages	0	29	76.3%
	1	8	21.1%
	2	0	0.0%
	3	1	2.6%

Tab. 3. Type of endometriosis and treatment.

Tab. 3. Typ endometriózy a léčba.

	Absolute frequency	Relative frequency	
Type of endometriosis	ovarian	13	34.2%
	ovarian + deep rectovaginal	4	10.5%
	peritoneal	5	13.2%
	deep rectovaginal	7	18.4%
	peritoneal + adenomyosis	3	7.9%
	adenomyosis	5	13.2%
	endometriosis in the scar	1	2.6%

(from the onset of first symptoms to diagnosis) was around 21.3 months, or just under 2 years (Tab. 1).

A total of 30 women (78.9%) were employed full-time, three (7.9%) were employed part-time, one was self-employed (2.6%), one woman (2.6%) was unemployed, one (2.6%) was a student, and two women (5.3%) were on maternal leave. The most common educational level was secondary school with a school leaving certificate (55.3%), and most women lived with a partner (39.5%) or a husband (50%).

In terms of number of pregnancies, nulligravida women were the most represented in the study population at 44.7%, six women (15.8%) had been pregnant once, 10 (26.3%) were preg-

nant twice, and five women (13.2%) had been pregnant 3-times. More than half of the women – 21 (55.3%) – had never given birth. Eight women (21.1%) had a history of one miscarriage and one woman (2.6%) had miscarried three times (Tab. 2).

Of the total sample, 13 women had ovarian endometriosis (34.2%), five had peritoneal endometriosis (13.2%), seven suffered from deep rectovaginal endometriosis (18.4%), five had adenomyosis (13.2%), and one patient had endometriosis in a scar after Caesarean section (2.6%). Four patients had both ovarian and deep rectovaginal forms (10.5%) and three women had peritoneal form of endometriosis together with adenomyosis (7.9%) (Tab. 3).

Prior to the study, 17 patients had previously undergone treatment: three patients were treated pharmacologically (7.9%), 11 patients had a surgical type of treatment (28.9%), and three patients had both pharmacological and surgical type of treatment (7.9%). In all 14 patients, a laparoscopic surgery was performed. In our cohort 3 months into the treatment, 26 patients (68.4%) had undergone surgery, six patients (15.8%) were treated pharmacologically, and six patients (15.8%) were treated with both surgical and pharmacological treatment. All surgeries in the 32 patients had been performed laparoscopically (Tab. 4).

During the quality of life survey, pain was also assessed. Twenty-three patients (60%) suffered from pain before the

Tab. 4. Method of treatment.

Tab. 4. Způsob léčby.

		On entry		After 3 months	
		absolute frequency	relative frequency	absolute frequency	relative frequency
Treatment	without treatment	21	55.3%	0	0.0%
	pharmacological	3	7.9%	6	15.8%
	surgical	11	28.9%	26	68.4%
	pharmacological + surgical	3	7.9%	6	15.8%
Operations	without surgery	24	63.2%	6	15.79%
	laparoscopic surgery	14	36.8%	32	84.21%

Tab. 5. Pain assessment before and 3 months after treatment.

Tab. 5. Hodnocení bolesti před a 3 měsíce po léčbě.

	On entry (N = 38)					After 3 months (N = 38)					P
	average	SD	Min.	Max.	median	average	SD	Min.	Max.	median	
Pain during menstruation	6.55	2.18	0.00	10.00	7.00	0.92	1.05	0.00	3.00	0.50	< 0.0001
Pain outside menstruation	2.74	2.53	0.00	9.00	2.00	0.45	0.76	0.00	2.00	0.00	< 0.0001
Pain during sexual intercourse	2.55	2.81	0.00	9.00	2.00	0.66	0.91	0.00	3.00	0.00	0.0001
Pain when urinating	0.63	1.32	0.00	5.00	0.00	0.05	0.23	0.00	1.00	0.00	0.007
Pain during defecation	1.26	2.21	0.00	9.00	0.00	0.18	0.46	0.00	2.00	0.00	0.003

Max. – maximum, Min. – minimum, N – number, SD – standard deviation

treatment but also 3 months after the start of the treatment; one patient (3%) did not suffer from pain before or after the treatment; and 14 patients (37%) showed statistically significant improvement ($P = 0.0001$) when they reported pain before the start of the treatment but did not report pain after 3 months into treatment. Pain intensity before and 3 months after the start of treatment was measured using the Numerical Rating Scale (NRS) during menstruation, outside menstruation, during intercourse, during micturition, and during defecation. Using the Wilcoxon test, it was verified that 3 months after initiation of treatment, the pain rate dropped in all areas. The most significant improvement was during menstruation and outside menstruation ($P < 0.0001$) (Tab. 5).

The mean scores of the different domains of the EHP-30 questionnaire are

shown in Tab. 6. When comparing quality of life before treatment and 3 months after the start of treatment, an improvement in quality of life was found in all domains (except for the domain “infertility”) 3 months after the introduction of treatment. The greatest improvement was found in the “Control and powerlessness” domain, with an average improvement of 29.7. Conversely, the smallest average improvement (5.4) was found in the “Medical profession” domain. In addition to the domain “Control and powerlessness,” statistically significant improvements were also observed in the domains “Emotional well-being” and “Pain” ($P < 0.0001$).

Discussion

In this study, longitudinal data on the quality of life of 38 patients with endometriosis were obtained and it was

shown that the quality of life of women with endometriosis was significantly improved after receiving treatment for this disease.

The mean age of the patients was 34.9 years, which is comparable to similar studies giving a mean age of 33–34 years [17,22,23]. A study by Nogueira et al. also included women aged 30–40 years, which they believe reflects the delay in diagnosis and initiation of treatment, as has been noted across the world. Most of the patients included were living in a partner or marital relationship [24]. This is a factor known to increase the likelihood of seeing a doctor because of painful intercourse or the desire to have children, according to Friedl et al. [25]. The mean age of onset of menstrual period was around 12.63 ± 1.40 years, which is consistent with the results of a study by

Tab. 6. Quality of life assessment before and 3 months after treatment.

Tab. 6. Hodnocení kvality života před a 3 měsíce po léčbě.

EHP-30 domains	On entry						Average difference						After 3 months	P
	N	mean	SD	Min.	Max.	median	N	mean	SD	Min.	Max.	median		
Pain	38	40.49	24.12	0.00	86.36	45.45	38	20.16	15.45	0.00	50.00	23.86	20.3	< 0.0001
Control and powerlessness	38	55.04	28.66	0.00	100.00	56.25	38	25.33	18.31	0.00	75.00	25.00	29.7	< 0.0001
Emotional well-being	38	39.58	23.53	0.00	87.50	43.75	38	18.75	16.06	0.00	58.33	18.75	20.8	< 0.0001
Social support	38	33.72	23.54	0.00	81.25	31.25	38	22.37	18.07	0.00	56.25	25.00	11.3	0.0002
Self-image	38	26.97	27.97	0.00	100.00	20.83	38	7.02	13.07	0.00	41.67	0.00	20.0	0.0001
Work	37	34.46	34.54	0.00	100.00	30.00	37	14.32	16.92	0.00	75.00	10.00	20.1	0.0001
Relationship with child/children	17	21.32	28.56	0.00	75.00	0.00	17	8.82	15.16	0.00	50.00	0.00	12.5	0.016
Sexual relationships	28	40.89	31.68	0.00	100.00	45.00	31	22.74	21.40	0.00	80.00	20.00	18.2	0.0001
Feelings about medical profession	35	20.71	20.55	0.00	68.75	18.75	36	15.28	16.19	0.00	50.00	12.50	5.4	0.010
Feelings about treatment	10	35.00	28.00	0.00	75.00	37.50	34	27.21	16.06	0.00	50.00	25.00	7.8	0.016
Feelings about Infertility	20	49.06	32.52	0.00	100.00	62.50	23	51.36	29.97	0.00	100.00	62.50	-2.3	0.739

Max. – maximum, Min. – minimum, N – number, SD – standard deviation

Poordast et al., who reported then the age of 12.68 ± 1.52 years in patients with endometriosis and infertility, and 12.93 ± 1.54 years in patients with endometriosis without infertility [26]. In the women in our cohort, the first symptoms of endometriosis appeared at the age of 31.24 ± 7.24 years and the diagnosis of endometriosis was made at a mean of 21.3 months after the first symptoms. This is not consistent with, for example, the study by Khong et al., who found a mean onset of first symptoms as early as 24.3 ± 8.1 years and a mean time from onset of symptoms to diagnosis of endometriosis of 4.5 ± 6.3 years (range from 0 to 30.2 years) [22]. This may be explained due to the different size of the sample, where the study by Khong included a total of 195 women. It could also be due to postponing of motherhood to an older age, which is the current trend in the Czech Republic, and the flexible and advanced health care system and improvement of diagnostic methods.

Our data show that endometriosis affects several aspects of the quality of life

of patients with this disease. At the same time, treatment can lead to an improved quality of life amongst women suffering from this disease. In the entire study population, significant improvements were observed in all aspects of quality of life except for the domain "Infertility" at 3 months into the treatment. The greatest improvement was observed in the "Control and powerlessness" domain, followed by the "Emotional well-being" and "Pain" domains. The smallest improvement was observed in the domain "Medical profession." This domain assesses feelings about the medical profession regarding e.g. the patient-doctor relationship and the doctor's knowledge of endometriosis. This domain was already well rated at baseline, so there was only a slight improvement here. Significant improvements in all aspects of quality of life except for "Medical profession" have been confirmed by other studies [17,27]. According to them, this may be due to the fact that the relationship with doctors is not necessarily related to the current health status.

A study by Tiringier et al. included a total of 115 patients who assessed the quality of life using the EHP-30 questionnaire before surgery and then 6–10 weeks after surgery. Compared with preoperative status, there was a significant improvement in all five domains of "Pain" (HR 0.78; $P < 0.001$); "Control and powerlessness" (HR 0.92; $P < 0.001$); "Emotional well-being" (HR 0.83; $P < 0.001$); "Social support" (HR 0.67; $P < 0.001$); and "Self-image" (HR 0.47; $P < 0.001$). The most significant improvement was observed in the domain "Control and powerlessness," followed by the domains "Pain" and "Emotional well-being" [17]. The same improvement was also recorded in our study and these data are further comparable e.g., to a study by Jones et al. published in 2004, where the largest positive change was also found in the "Control and powerlessness" domain [28].

In a study by Tiringier et al., a positive change was observed not only in patients who underwent surgical treatment but also in those who were on hormone therapy. The study is primar-

ily concerned with the improvement in quality of life after undergoing surgical treatment, but patients on hormone therapy were included because the use of hormones alone can also affect quality of life. Patients with endometriosis often do not wish to discontinue hormone therapy before surgery [17]. Patients with pharmacological treatment are also included in our cohort. However, in contrast to our study, Tiringner worked with a larger sample of respondents and also with different forms of endometriosis. In our study, all forms of endometriosis and treatments were evaluated together because of the small sample size.

Improvements in quality of life at 3 and subsequently at 6 months post-operatively were also reported in the study by Nogueira et al., where scores were also reduced in all domains except in the "Medical profession" domain. The study was conducted in a sample of 102 women and included all forms of endometriosis. Neither moderate nor strong correlation was found between the degree of endometriosis and quality of life scores using the EHP-30 before surgery and 3 and 6 months after surgery [24].

An Iranian study surveyed the quality of life of women with endometriosis and then compared it to the quality of life of women with infertility and a normal population of healthy women. Women who underwent pharmacological and surgical treatment were included. Three months after treatment for endometriosis, a significant improvement was observed in all aspects of quality of life as well as in the reduction of pain [26].

Improvement of quality of life in patients with endometriosis by pharmacological and surgical treatment is also confirmed in a literature review by Koliba et al. [18].

Several limitations of our study should be mentioned. One of the limitations is the small number of respondents who took part in the study. Furthermore, patients with different forms of endome-

triosis were considered without differentiating between the various forms of endometriosis and with all types of treatment (both pharmacological and surgical), which also could have different factors affecting their quality of life. However, this is related to the small sample size. Due to the short follow-up period (3 months), it is not possible to comment on the long-term effect of treatment. In this respect, further studies should be conducted to assess the effectiveness of pharmacological and surgical treatment separately and over a longer period of time (6 or 12 months after the start of treatment) and in a larger group of respondents.

Conclusion

Endometriosis is a disease that affects women of reproductive age, and its symptoms can significantly affect a woman's quality of life. The results indicate that treatment of endometriosis has a positive effect on improving quality of life and reducing pain intensity and therefore, it is important and beneficial for these women. Subjective assessment of quality of life before and after the initiation of therapy also helps to evaluate the effectiveness of the treatment and helps healthcare professionals to understand the feelings and needs of the patients.

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Tyndaflor

Účinnost u pacientek s nespecifickou vulvovaginitidou

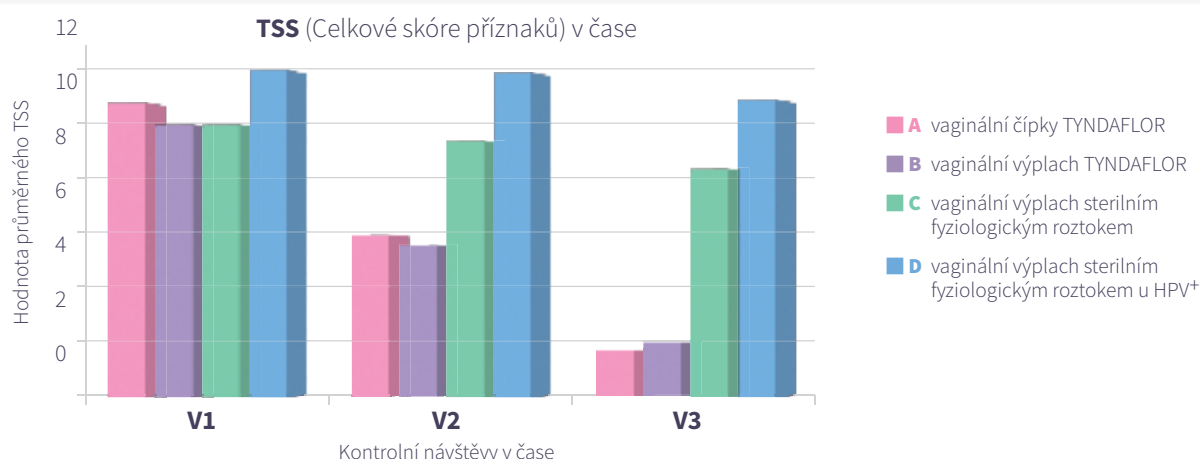
Hodnocení účinnosti vaginálních čípků a vaginálního výplachu u žen s nespecifickými vulvovaginitidami středního stupně.

Randomizace fáze I	SKUPINA A 23 HPV ⁻ pacientek 1 vaginální čípek Tyndaflor denně	SKUPINA B 23 HPV ⁻ pacientek 1 vaginální výplach Tyndaflor denně	SKUPINA C 24 HPV ⁻ pacientek 1 vaginální výplach fyziologickým roztokem denně	SKUPINA D 21 HPV ⁺ pacientek 1 vaginální výplach fyziologickým roztokem denně
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Časová osa: Každá pacientka absolvovala 3 návštěvy během 10 dnů. Návštěva V2 proběhla po 5 a V3 po 10 dnech léčby.

Hodnocení	Subjektivní příznaky	pálení, bolest, svědění, vaginální suchost, dyspareunie a dysurie
	Objektivní příznaky	leukorhea, erytém vulvy, edém vulvy a přítomnost abraze/eroze

Úspěšnost léčby po 10 dnech 91,3%^{1*}



Vaginální čípky:²

- Tyndalizovaná probiotika
- Prebiotika
- Kyselina mléčná
- Extrakt z měsíčku lékařského

Vaginální výplach:²

- Chlorhexidin
- Tyndalizovaná probiotika
- Kyselina mléčná
- α-bisabolol



* Skupiny A a B dosáhly v době V3 statisticky významného úspěchu 91,3% ve srovnání se skupinou C

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2. Návodů k použití naleznete na www.tyndaflor.cz.

Klinická studie byla prováděna v Itálii, kde jsou zdravotnické prostředky řady Tyndaflor distribuovány pod obchodním názvem Logusgyn.

Tyndaflor vaginální čípky a Tyndaflor vaginální výplach jsou zdravotnické prostředky určené pro podpůrnou léčbu příznaků spojených s vulvovaginitidou jakéhokoliv původu.