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### DYNAMICS OF THE QUALITY OF LIFE IN PATIENTS WITH ADENOMYOSIS AND / OR HYPERPLASTIC ENDOMETRIAL PROCESSES

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#### Abstract

The purpose of our research was to study the indicators of quality of life in patients with adenomyosis and / or hyperplastic endometrial processes.

The study included 129 patients aged from 27 to 53 years (on average  $39.4 \pm 8.6$ ) / Laparoscopy and hysteroscopy were performed according to the standard technique for therapeutic purposes, followed by hormonal therapy using progestins (pills or intrauterine systems containing synthetic progesterone). To study HRQoL, we used the most common general health-related quality of life questionnaire Medical Outcomes Study (MOS SF-36) consisting of 36 questions and including 8 scales. The obtained results indicate an improvement in the QoL indicators after uncomplicated surgery followed by hormonal therapy in all women based on the responses to the SF-36 questionnaire. However, significant changes ( $p < 0.05$ ) were noted in indicators of physical functioning, vitality and mental health. The vitality indicator improved by 134.2% in women with adenomyosis; the mental health indicator was improved by 65.5% in patients with adenomyosis and endometrial hyperplastic processes; and the physical functioning indicator greatly increased (by 73.1%) in patients with endometrial hyperplastic processes after surgery.

**Keywords:** adenomyosis, hyperplastic endometrial processes, Medical Outcomes Study SF-36 questionnaire.

Almost all gynecological diseases have a significant impact on the quality of life, psychological well-being and interpersonal relationships of women. The manifestations of the disease gradually impair a woman's ability to perform certain daily activities and lead to a feeling of deterioration in her health and general well-being. The impact of these symptoms has only been partially studied, and further clinical studies are needed to fully understand the extent of this condition

[1].

Many researchers pay great attention to studies of the quality of life in medicine, which led to a significant change in the traditional views on the problem of illness and the patient. Since research on the quality of life in medicine is directly related to health, then, in fact, physicians conduct research on the quality of life (QoL), which changes depending on the state of health. In this regard, the concept "Quality of Life" and the concept "Health Related Quality of Life" (HRQoL) are separated [2].

The **purpose** of our research was to study the indicators of quality of life in patients with adenomyosis and / or hyperplastic endometrial processes.

**Material and methods.** The study included 129 patients aged from 27 to 53 years (on average  $39.4 \pm 8.6$ ), who were examined and treated at the Municipal non-profit organization of Kharkiv City Council

"Kharkiv Regional Perinatal Center", women's consultation, department of surgical gynecology with minimally invasive technologies. The first group consisted of 38 (29.6%) patients with the diagnosis of adenomyosis of the I-II degree, 42 (32.1%) patients of the second group were diagnosed with a combination of adenomyosis of the I-II degree with hyperplastic processes of the endometrium and / or uterine leiomyoma, the third the group included 39 (30.5%) women with only hyperplastic endometrial processes.

All patients brought medical records of the disease and symptoms, assessed the severity and course of the disease. The following clinical laboratory and biochemical studies were performed: general clinical methods of blood and urine analysis, biochemical blood test, coagulogram, lipid profile, FSH, LH, prolactin and estradiol levels on the 5-7<sup>th</sup> day of the menstrual cycle and progesterone. Visual methods included ultrasound examination of the pelvic organs, which was performed using vaginal and abdominal transducers, as well as ultrasound elastography, which was performed using the ULTIMA PA device GRIS.941217.015-01 (Ukraine).

Laparoscopy and hysteroscopy were performed according to the standard technique for therapeutic purposes, followed by hormonal therapy using progestins (pills or intrauterine systems containing synthetic

progesterone). We morphologically examined the endometrium fragments with the underlying myometrium, which were obtained during hysteroscopic surgery performed using the Karl Storz-endoscope UP-210 SN: SQ 01490 (Germany).

To study HRQoL, we used the most common general health-related quality of life questionnaire Medical Outcomes Study (MOS SF-36) consisting of 36 questions and including 8 scales.

1. Physical Functioning (PF) reflects the degree to which the physical condition limits the performance of physical activities (self-care, walking, climbing stairs, carrying weights, etc.). Low scores on this scale indicate that the patient's physical activity is significantly limited by the state of his/her health.

2. Role-Physical Functioning (RPF) shows the impact of physical condition on daily role-playing activities (work, daily routine). Low scores on this scale indicate that daily activities are significantly limited by the patient's physical condition.

3. Bodily pain (BP) indicate its effect of the intensity of pain on the ability to carry out daily activities, including work around the house and outside the home. Low scores on this scale indicate that pain significantly limits the patient's activity.

4. General health (GH) assesses the patients' state of health at the moment and the prospects for treatment. The lower is the score on this scale, the lower is the health score.

5. Vitality (VT) means feeling full of strength and energy or, on the contrary, exhausted. Low scores indicate patient's fatigue and decreased vitality.

6. Social Functioning (SF) is defined by the degree to which a patient's physical or emotional state limits social activity (communication). Low scores indicate a significant limitation of social contacts, a

decrease in the level of communication due to a deterioration in the physical and emotional state.

7. Role Emotional Functioning (REF) assesses the degree to which the emotional state interferes with the performance of work or other daily routine (including a large expenditure of time, decrease in the volume of work, decrease in its quality, etc.). Low scores on this scale are interpreted as a restriction in the performance of daily routine due to deterioration in the emotional state.

8. Mental health (MH) characterizes the mood, the presence of depression, anxiety, a general indicator of positive emotions. Low indicators show the presence of depressive, anxious experience, mental distress.

The answers to the questions are expressed in points from 0 to 100. The greater the number of points on the scale corresponds to a higher level of quality of life. The criteria for health-related quality of life according to MOS SF-36 are: physical activity, the role of physical problems in limitation of life, pain, general health, vitality, social activity, the role of emotional problems in limitation of life, mental health.

The results were statistically processed using the Statistica 10.0 package. The critical p-value significance level for all used statistical analysis procedures was equal to 0.05.

**Results and discussion.** The average age of the patients was  $39.4 \pm 8.6$ . We did not find a significant difference in the age and duration of the menstrual cycle (from 25 to 28 days) in the patients of the three groups. However, we paid attention to the significantly increased number of patients' complaints about the manifestations of menorrhagia in the adenomyosis group (57.9%) compared with the data of the second and third groups (43.9% and 43.6%, respectively) ( $<0.05$ ) (Table 1).

Table 1

Clinical characteristics of patients (n = 128)

The investigated parameter	group 1 n=38	group 2 n=41	group 3 n=39	P
Average age, years	38.4±8.9	39.7±7.4	39.1±8.2	>0.05
Average menstrual cycle duration, days	25.7±1.6	26.1±1.4	26.6±1.8	>0.05
Menorrhagia	22 (57.9%)	18 (43.9%)	17 (43.6%)	<0.05
Dysmenorrhea	27 (71.1%)	23 (56.1%)	19 (48.7%)	<0.05
Bleeding before and after menstruation	29 (76.3%)	15 (36.6%)	10 (25.6%)	<0.05
Mid-menstrual bleeding	28 (73.7%)	18 (43.9%)	6 (15.4%)	<0.05
Anemia	25 (65.7%)	28 (68.3%)	28 (71.8%)	>0.05

76.3% of patients with adenomyosis had bleeding before and after menstruation significantly more often (36.6% and 25.6%, respectively) ( $<0.05$ ) and in the middle of the menstrual cycle (73.7% versus 43.9% and 15.4%, respectively) ( $<0.05$ ) compared with patients of the second and third groups.

The clinical and laboratory examination showed the decrease in the hemoglobin level in 63.3% of the examined patients. However, in the third group, this indicator exceeded the data of the patients of the first and second groups (71.8% versus 65.7% and 68.36% respectively), which was due to menometrorrhagia in patients of these groups.

Most of the patients (78 / 60.9%) were in the reproductive and late reproductive periods. There were 39.1 % of women in premenopausal period. In our studies, none of the patients was in the menopausal period.

The study of the HRQoL of patients using the SF-36 questionnaire scale significantly expanded the understanding of the QoL of these patients before treatment. First of all, this is due to the fact that SF-36 is a general questionnaire that helps to assess the QoL of respondents with various nosologies and compare this indicator with that of a healthy person. In addition, the SF-36, despite its brevity, has a fairly high sensitivity [3, 4].

When assessing the results of the questionnaire, modern researchers adhere to the division according to the physical and psychological components of health. The physical components include physical functioning, role physical functioning, bodily pain, and general health. The psychological components include vitality, social functioning, role emotional functioning and mental health [5].

The physical functioning indicator varied from 12 to 24 reaching an average of  $18.2 \pm 2.6$  points in the first group patients with adenomyosis (Table 2).

Before treatment, when asked about the limitation of the possibility of self-care due to the illness, all patients answered negatively (3 points), but the question about the effect of the condition on the limitation of heavy physical exertion, the patients responded "Yes, it significantly limits". After surgery, this median of the physical functioning index in patients of this group increased to 30 points, averaging  $25.4 \pm 3.6$  points.

Table 2

Dynamics of the QoL according to the SF-36 scale in patients of group 1 (n = 38)				
Quality of Life Index	Median, Q <sub>25</sub> -Q <sub>75</sub>	Before treatment	After treatment	P
Physical component of health				
Physical Functioning	Me	18.2±2.6	25.4±3.6	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	12-24	18-30	
Role-Physical Functioning	Me	6.2±2.5	6.2±1.2	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	5-8	4-9	
Bodily Pain	Me	8.2±1.7	3.1±1.7	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	4-12	2-5	
General Health	Me	12.6±3.1	18.8±4.1	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	6-18	9-24	
The psychological component of health				
Vitality	Me	17.8±3.3	7.6±2.3	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	11-22	4-12	
Social functioning	Me	7.2±2.6	8.2±1.6	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	5-10	6-10	
Role Emotional Functioning	Me	4.2±1.7	5.8±1.3	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	3-6	4-7	
Mental Health	Me	13.8±3.6	8.7±3.1	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	8-15	5-10	

The average score of role-physical functioning was  $6.2 \pm 2.5$  with fluctuations from 5 to 8 points. Considering that the HRQoL for this indicator is assessed inversely (the higher is the indicator, the less, according to the respondent, are health problems limiting his/her daily activities), it can be stated that, in general, this indicator in patients with adenomyosis was at a relatively high level. The treatment did not significantly change the presented data, which ranged from 4 to 9, averaging  $6.2 \pm 1.2$ .

On the point scale, the intensity of bodily pain varied from 4 to 12 points (on average,  $8.2 \pm 1.7$  points). Evaluating this indicator, 11 out of 38 (28.9%) patients in the adenomyosis group experienced very severe pain (12 points). This indicator most clearly presented the effectiveness of treatment: 20 (52.6%) patients indicated "very mild pain" and 18 (47.4%) patients "did not experience pain at all." The mean postoperative pain score was  $3.1 \pm 1.7$  points.

Before treatment, the indicator of general health varied within 6-18 points, averaging  $12.6 \pm 3.1$ . When being interviewed, none of the first group patients answered the question "How would you generally assess your state of health?" answered "excellent" or "very good". 9 (23.7%) out of 38 respondents answered "good", 24 (63.2%) patients named their state of health "bad", and 5 (13.1%) patients called it "very bad". In the postoperative period, this indicator in-

creased to  $18.8 \pm 4.1$  though this change was not significant ( $p > 0.05$ ).

The vitality in patients with adenomyosis varied from 11 to 22 and averaged  $17.8 \pm 3.3$  points. After the treatment, this indicator had the maximum change. During the survey, the answers "most of the time" and "often" prevailed, so the average score decreased to  $7.6 \pm 2.3$  points.

In total, the indicator of social functioning varied from 5 to 10 points, on average it was  $7.2 \pm 2.6$  points. Answering the question "how much did your physical and emotional state during the last 4 weeks prevent you from spending time with your family, friends, neighbors or in a team?" dominated with "did not interfere" and "a little". And when asked "how often over the past 4 weeks did your physical or emotional state prevent you from actively communicating with people?" 100% of patients answered "rarely". After treatment, the indices did not change significantly and increased to  $8.2 \pm 1.6$  (from 6 to 10).

In patients with adenomyosis, the indicator of role emotional functioning varied from 3 to 6 points, averaging  $4.2 \pm 1.7$  points. There was no significant increase in the studied indicator after treatment ( $5.8 \pm 1.3$ ).

The HRQoL according to the mental health indicator, as well as role emotional functioning, is assessed in inverse proportion. The surveyed patients in the quantitative assessment decreased (improved) on

all points. To the questions "did you feel depressed, discouraged and sad, worn out, tired?" 32 (84.2%) patients of the first group answered "never" and "rarely". The mean score significantly decreased from  $13.8 \pm 3.6$  to  $8.7 \pm 3$ .

In the second group of patients with a combination of grade I-II adenomyosis with endometrial hy-

perplastic processes and / or uterine leiomyoma ( $n = 41$ ), after treatment, positive dynamics was also noted in all parameters. However, special attention should be paid to the results in the subgroups of physical functioning, bodily pain, vitality and mental health (Table 3).

Table 3

**Dynamics of the QoL according to SF-36 scale in patients of group 2 (n = 41)**

Quality of Life Index	Median, Q <sub>25</sub> -Q <sub>75</sub>	Before treatment	After treatment	P
<b>Physical component of health</b>				
Physical Functioning	Me	16,4±2,8	26.6±4.5	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	11-22	18-30	
Role-Physical Functioning	Me	6,7±2,4	5.2±1.8	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	5-8	4-8	
Bodily Pain	Me	4,4±1,3	2.9±1.1	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	2-11	2-5	
General Health	Me	14,8±4,2	18.2±4.6	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	7-23	10-25	
<b>The psychological component of health</b>				
Vitality	Me	16.2±2.8	7.8±2.5	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	8-22	4-13	
Social Functioning	Me	7.8±1.4	8.4±0.8	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	5-10	7-10	
Role Emotional Functioning	Me	5.2±2.2	5.5±1.3	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	3-6	4-6	
Mental Health	Me	19.2±3.3	11.6±2.9	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	12-24	7-15	

The values of the indicator of physical functioning in the patients of this group after surgery in separate questionnaires increased to 30 points (the highest score) and averaged  $26.6 \pm 4.5$  points. However, some patients continued to experience difficulties in "climbing stairs for several flights" and "walking a distance of more than 1 kilometer".

The weak bodily pain was recorded in 19 women (46.3%), and 11 (26.8%) women were not limited by bodily pain at all. The average pain score was  $2.9 \pm 1.1$  points.

When assessing the vitality, we established the predominance of the answers "most of the time" and "often", so the average score decreased (improved) to  $7.8 \pm 2.5$  points. Mental health quantitatively decreased (improved) on all counts, because the ques-

tions included in this section ("did you feel depressed, discouraged and sad, worn out, tired?") were dominated by the answers "never" and "rarely" (83.3%). The average score was  $11.6 \pm 2.9$  with variations from 7 to 15 points.

The patients of the third group ( $n = 39$ ), which included women only with hyperplastic endometrial processes, did not show significant improvements in the sections of physical functioning, vitality and mental health (Table 4).

Judging by the changes in the QoL in patients with hyperplastic endometrial processes on the SF-36 scale, significant improvements were found in the sections of physical functioning, vitality and mental health.

**Dynamics of the QoL according to the SF-36 scale of patients of group 3 (n = 39)**

Quality of Life Index	Median, Q <sub>25</sub> -Q <sub>75</sub>	Before treatment	After treatment	P
Physical component of health				
Physical Functioning	Me	15.2±2.1	26.3±3.4	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	12-21	22-30	
Role-Physical Functioning	Me	6.5±2.1	5.5±15	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	5-8	4-8	
Bodily Pain	Me	2.4±1.1	2.8±1.4	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	2-5	2-5	
General Health	Me	16.5±3.5	17.3±3.6	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	12-24	11-24	
The psychological component of health				
Vitality	Me	17.5±2.3	7.7±2.2	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	10-19	4-13	
Social Functioning	Me	7.7±1.3	8.2±1.0	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	5-10	7-10	
Role Emotional Functioning	Me	5.5±2.0	5.4±1.1	>0.05
	Q <sub>25</sub> -Q <sub>75</sub>	4-6	4-6	
Mental Health	Me	14.1±2.4	9.8±1.7	<0.05
	Q <sub>25</sub> -Q <sub>75</sub>	7-16	5-11	

The values of the physical functioning indicator in patients of this group after surgery and in patients after transvaginal conservative myomectomy in individual questionnaires increased to 30 points and averaged  $26.3 \pm 3.4$  points. When assessing the vitality, we noted the prevalence of the answers "most of the time" and "often", therefore the average score decreased (improved) to  $7.7 \pm 2.2$  points.

Mental health quantitatively decreased (improved) on all counts, because the questions included

in this section ("did you feel depressed, discouraged and sad, exhausted, tired?") had mostly the answers "never" and "rarely" (92.2%). The average score was  $9.8 \pm 1.7$ .

The results of the QoL indicators dynamics before and after treatment showed significant changes ( $p < 0.05$ ) in all groups related to indicators of physical functioning, vitality and mental health (Fig. 1).

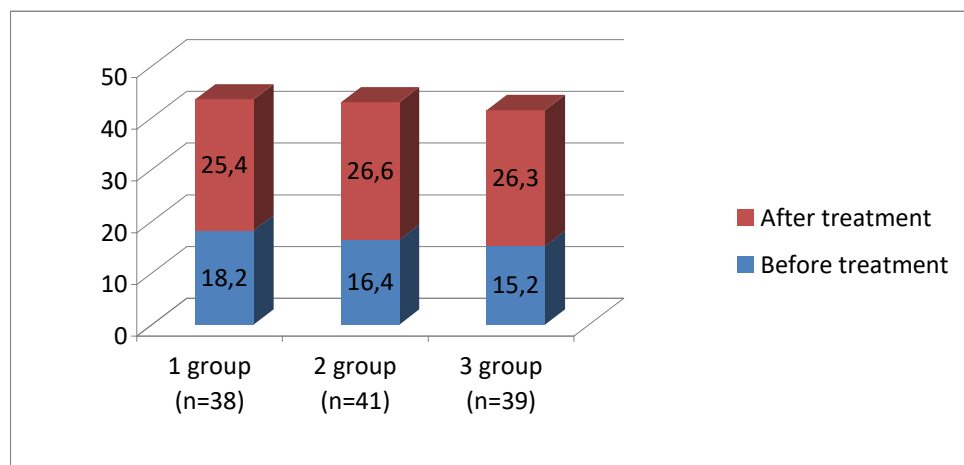


Fig. 1. Dynamics of the physical functioning indicator in the surveyed patients

However, in the first group, the indicator of physical functioning increased by 1.39 times, which amounted to 39.6%, in the second group it enlarged by 1.62 (62.2%), and in the third group it raised by 1.73 times, i.e. 73.1%. Thus, the third group patients with hyperplastic endometrial processes after surgery had

the greatest increase in the indicator of physical functioning (Fig. 1).

Significant changes ( $p < 0.05$ ) in the vitality indicator demonstrated that in the first group this indicator decreased from the initial value by 2.34 times, which amounted to 134.2%, in the second group it abated by

2.1 times (107.7% ), and in the third group this indicator lowered by 2.3 times (127.3%) (Fig. 2).

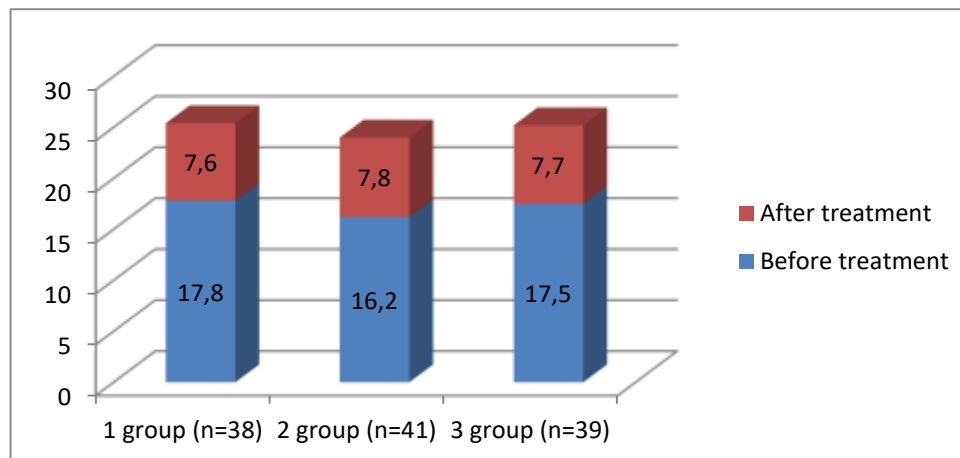


Fig. 2. Dynamics of the vitality indicator in patients of the examined groups

The most pronounced improvement in vitality after treatment was noted in patients of the first group with adenomyosis. This is probably due to the decrease or complete absence of dysmenorrhea and menorrhagia manifestations, and as a consequence, to normalization of hemoglobin levels. Only this group patients showed a significant improvement in the bodily pain indicator from  $8.2 \pm 1.7$  to  $3.1 \pm 1.7$  points ( $p < 0.05$ ).

Statistically significant changes ( $p < 0.05$ ) in the mental health indicator demonstrated decrease in the

first group from the initial value by 1.59 times, which amounted to 58.6%, in the second group it lowered by 1.65 times (65.5%), and in the third group it decreased by 1.43 times (43.9%) (Fig. 3). Thus, after the treatment, a significant improvement in the indicator of mental health was noted in the second group patients who associated a decrease in psychological load with the resolution of the problem of uterine bleeding and the exclusion of the malignant process of the endometrium after pathomorphological examination.

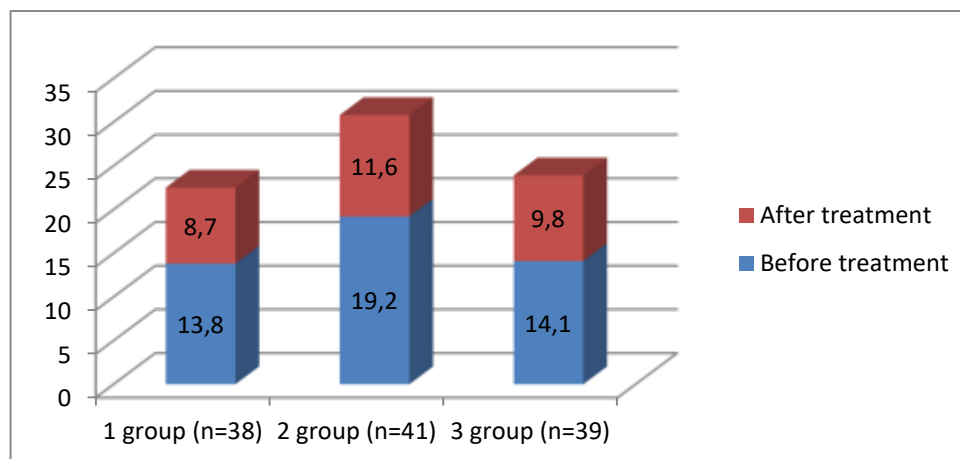


Fig. 3. Dynamics of the mental health indicator in female patients of the surveyed groups

### Conclusion

The obtained results indicate an improvement in the QoL indicators after uncomplicated surgery followed by hormonal therapy in all women based on the responses to the SF-36 questionnaire. However, significant changes ( $p < 0.05$ ) were noted in indicators of physical functioning, vitality and mental health. The vitality indicator improved by 134.2% in women with adenomyosis; the mental health indicator was improved by 65.5% in patients with adenomyosis and endometrial hyperplastic processes; and the physical functioning indicator greatly increased (by 73.1%) in patients with endometrial hyperplastic processes after surgery.

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