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POST- OPERATIVE STRATEGY IN THE LONG-TERM PERIOD AFTER SURGICAL TREATMENT OF STRANGULATED INGUINAL HERNIA

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Abstract

The aim of the study was to evaluate the impact of an individualized approach to postoperative management on the long-term outcomes of open and laparoscopic surgical treatment of strangulated inguinal hernia. The study included 95 patients diagnosed with strangulated inguinal hernia, including 78 (85,8%) men and 17 (14,1%) women, with a mean age of 49.2 years (range 23-75). The patients were divided into two groups. The first group, a study group, included 50 patients who underwent laparoscopic TAPP hernia repair, and the second group, a comparison group, included 45 patients who underwent the Lichtenstein technique. The studies were conducted six months after surgery. After surgery, patients were given instructions on physical exercises to strengthen muscles, maintain cardiovascular fitness, stimulate metabolism, and a recommended diet. An integrated determination of patients' quality of life was conducted using the SF-36 Health Status Survey (USA) questionnaire. The SF 36v2 quality of life questionnaire was used for the survey, a link to which was received by the patient on his personal mobile device. The values of the comprehensive indicator of the physical component of health in the group of patients operated on using the Lichtenstein method were $42,6 \pm 4,2$ points ($p < 0,05$) and were lower compared to patients operated on using the TAPP method – $50,2 \pm 5,8$ points ($p < 0,05$). The comprehensive indicator of the psychological component of health in the group of patients operated on using the Lichtenstein method was $42,0 \pm 4,3$ points ($p < 0,005$) according to the TAPP method – $49,0 \pm 7,3$. The pain intensity score in the Lichtenstein group was lower by a third ($p < 0,05$) compared to the TAPP group. Patients in both groups had no readmissions within 12 months of surgery, demonstrating the positive impact of a comprehensive approach to postoperative care.

Key words: strangulated inguinal hernia, hernioplasty, quality of life, postoperative period, long-term outcomes.

Introduction:

Hernioplasty is one of the most common surgical procedures in the world: approximately 1 million operations are performed annually in the United States, and almost 20 million worldwide [1,2,3,4]. Strangulated inguinal hernia is considered one of the most common types of strangulated hernias of the anterior abdominal wall and accounts for 50-80% of all strangulated hernias [5, 6]. After discharge from the hospital, up to 5-6% of patients may be readmitted due to various complications. The main complication in the remote period after primary hernioplasty is hernia recurrence and chronic pain [7,8,9,10]. Given this problem, interest has recently arisen in the role of postoperative strategies to prevent complications in the postoperative period [11]. Several new surgical techniques have been developed aimed at reducing the rate of recurrence and persistent postoperative pain [9,10]. It is believed that continuing active patient management in the distant postoperative period can reduce the risk of readmission [5]. Therefore, we devoted our work to studying the effectiveness of an individualized approach to patient management in the postoperative period.

The aim of the study was to evaluate the impact of an individual approach to postoperative management on the long-term results of surgical treatment of strangulated inguinal hernia using open and laparoscopic methods.

Methods:

The study included 95 patients with a diagnosis of strangulated inguinal hernia, including 78 (85,8%) men and 17 (14,1%) women, the average age was 49,2 (23-75) years. They were divided into two groups. The first group was the main group of 50 people (MG) who underwent laparoscopic hernioplasty - TAPP and the second group was a comparison group of 45 people (CG) who underwent surgery using the Lichtenstein technique [12]. The study was conducted 6 months after the surgery. After surgery, patients were given instructions on physical exercises to strengthen muscles, maintain the cardiovascular system, stimulate metabolism and recommended diet, which included fresh fruits, vegetables, whole grains, legumes, and proteins. Recommended foods are including immunomodulators rich in vitamin C (citrus fruits, kiwi, broccoli and bell peppers), vitamin E (nuts, seeds and green leafy vegetables), and vitamin D (fish, eggs and mushrooms).

A comprehensive assessment of patients' quality of life was conducted using the SF-36 "Health Status Survey" (USA) questionnaire. The SF-36v2 quality-of-life questionnaire [13] was used for the survey. Patients received a link to it on their personal mobile device. They completed the survey, sent a screenshot of the results to the physician, and entered the results into a spreadsheet for subsequent statistical processing.

Statistical processing of the obtained data was performed using the Student's (t)-test; in case of non-normal distribution for unrelated samples, using the Pearson χ^2 (chi-square) test, for related samples using the Whitney-Wilcoxon test (W). The minimum statistical probability was determined by $P < 0,05$. Initial processing of the research data was carried out in the shells of the original Microsoft Office 2016 programs, version 18.2008.12711.0., STATISTICA 6.1 Stat Soft Inc No. AGAR909E41588.

Results and Discussion

We analyzed compliance with recommendations for muscle strengthening exercise and dietary regimens. Survey results showed that 34 (75,5%) patients in the comparison group (CG) followed the exercise recommendations in the first 2 months after surgery. Six months after the Lichtenstein procedure, 16 (35,5%) CG patients adhered to the recommendations. Twenty (44,4%) CG patients adhered to the dietary regimen, while 25 (55,5%) did not adhere to our recommendations and gained weight. In the main group (MG), 44 (88%) patients who underwent TAPP surgery followed the exercise recommendations in the first 2 months after surgery. This can be explained by the less traumatic surgical technique, which is why patients quickly restored their physical activity. Six months after surgery, 38 (76%) patients adhered to our recommendations on physical exercise and diet. Quality of life results were analyzed using the SF-36 Health Status Survey questionnaire six months after surgery. The values of the comprehensive physical health component indicator in the group of patients operated on using the Lichtenstein technique were $42,6 \pm 4,2$ points ($p < 0,05$) and were lower compared to patients operated on using the TAPP technique: $50,2 \pm 5,8$ points ($p < 0,05$). The psychological health component composite score includes indicators of social functioning, emotionally induced role functioning, mental health, and life activity. This score reflects the psychological health component score in the Lichtenstein group of patients, which was $42,0 \pm 4,3$ points ($p < 0,005$) and lower than in the TAPP group ($49,0 \pm 7,3$).

The pain intensity score reflects its impact on the ability to perform daily activities, including work at home and outside the home. Low scores on this scale indicate that pain significantly limits activity in all areas of the patient's life. The Lichtenstein group's scores for this score were one-third lower ($p < 0,05$) than those in the TAPP group (Table 1).

Parameters	Methodology Lichtenstein (n=45)		Methodology TAPP (n=50)	
	Average	Standard deviation	Average	Standard deviation
Physical component of health	42,6*	4,2	50,2*	5,8
Psychological component of health	42,0**	4,3	49,0**	7,3
Physical functioning	80,7**	13,7	91,2**	11,8
Role functioning determined by physical condition	66,6	19,6	75,2	29,1
Intensity of pain	65,2**	15,8	79,0**	20,7
General health	59,6***	6,1	71,3***	9,1
Vital activity	54,6*	8,5	66,7*	12,2
Social functioning	64,3*	12,6	76,3*	14,4
Role functioning determined by emotional state	52,2	24,4	62,8	32,1
Mental health	64,3***	9,9	74,4***	12,1

Standard deviation; * statistically significant difference in $p < 0,05$; ** statistically significant difference in $p < 0,005$; *** statistically significant difference in $p < 0,001$.

Table 1 Results of quality of life indicators according to the SF-36 Health Status Survey questionnaire (in points)

In many respects (clinical presentation, structural and anatomical changes in the postoperative scar area, and overall quality of life), the TAPP technique has clear advantages over other hernia repair techniques when combined with a program of recommended muscle-strengthening exercises and dietary recommendations. Patients in both groups had no rehospitalizations, demonstrating the positive impact of a comprehensive approach to patient care in the postoperative period.

Discussion

Given that human life is associated with high-volume and intense psycho-emotional and physical stress, often pushing the body to its limits, the development of methods that optimally utilize the body's functional reserves and unique capabilities to achieve positive surgical treatment outcomes is an extremely important issue [9, 10, 14]. Particular attention should be paid to correcting the adaptive and reserve capacities of the immune system, which are largely associated with a decrease in the body's bioenergetic capacity at the cellular level. This can be achieved by increasing physical endurance, directly correcting the immune system, and quickly eliminating the consequences of destructive processes under stress, high psycho-emotional tension, and moderate physical exertion [14]. Our studies have been leading us to conclude that the clinical and functional results of using the TAPP method are more encouraging than with the Lichtenstein method. Our individualized recommendations for muscle-strengthening exercise and dietary adjustments contributed to the restoration of immune status indicators and more rapid clinical and social adaptation of patients in the far-off postoperative period.

Conclusions:

1. The TAPP technique has clear advantages over other hernia repair techniques when combined with the program of recommended muscle strengthening exercises and dietary guidelines.
2. Patients in both groups had no cases of rehospitalizations within 12 months after surgery, demonstrating the positive impact of a comprehensive approach to patient care in the late term.

Conflict of interest:

The Authors declare no conflict of interest.

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