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ASSESSMENT OF QUALITY OF LIFE IN CHILDREN AFTER SURGICAL TREATMENT OF HIRSPRUNG'S DISEASE

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ABSTRACT

The article presents the results of studying the functional activity and quality of life of children with Hirschsprung's disease operated on according to the improved De La Torre-Ortega method and the classical Soave-Lenyushkin method.

The quality of life of the operated children was assessed according to the adapted PedsQL ™ 4.0 scale, which includes a total of 21 questions assessing physical, emotional, social and role functioning.

Analysis of the quality of life of children with Hirschsprung's disease showed a significant increase in indicators on all scales when performing the improved technique of the De La Torre-Ortega operation up to 84.1-92.3% in relation to the group of healthy children with a change in the value of the total score from 52.8 ± 10 , 0 to 70.4 ± 6.4 ($t = 6.79$; $p < 0.001$).

Key words: Hirschsprung's disease, quality of life, functional activity, children

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本文介绍了根据改进的 De La Torre-Ortega 方法和经典的 Soave-Lenyushkin 方法研究先天性巨结肠患儿的功能活动和生活质量的结果。

手术儿童的生活质量根据改编后的 PedsQL™ 4.0 量表进行评估，其中包括评估身体、情感、社交和角色功能的总共 21 个问题。

对先天性巨结肠儿童的生活质量分析显示，与有变化的健康儿童相比，采用改良的 De La Torre-Ortega 手术技术后，所有量表的指标均显着提高，高达 84.1-92.3% 在总分值从 52.8 ± 10 , 0 到 70.4 ± 6.4 (t = 6.79; p <0.001)。

关键词: 先天性巨结肠, 生活质量, 功能活动, 儿童

INTRODUCTION

Hirschsprung's disease is a fairly common developmental anomaly, it should be noted that the incidence of Hirschsprung's disease according to T.J. Bradnock [1], for several decades ranges from 1: 30,000 to 1: 2000 to the total number of newborns. According to average estimates, the incidence of Hirschsprung's disease worldwide is approximately 1 in 5000 live births. In the overwhelming majority of cases, the symptoms of this pathology are manifested already in the neonatal period or in early infancy [1].

Early radical intervention with resection of the aganglionic zone is the most optimal method for treating HD.

Today, it is becoming more common in Hirschsprung's disease, a radical one-stage surgical treatment using minimally invasive methods of surgical intervention. Modern surgical treatments for Hirschsprung's disease in newborns and young children can reduce mortality and improve outcomes.

Transanal resection is currently one of the most commonly used procedures for the treatment of HD worldwide. Over the past decades, this method has undergone some technical changes. However, as before, these interventions are associated with many potential complications that can lead to an irreversible deterioration in functional outcome and significant social limitations [8]. The most popular interventions are the transanal methods of Soave and Swenson [7].

The introduction of these types of operations has led to a reduction in the length of hospital stay and fewer postoperative complications. However, even with their implementation, the risk of developing various complications remains [2].

In 1998, De la Torre, using a single-stage transanal endorectal colon resection for the surgical treatment of Hirschsprung's disease, prevented the use of laparotomy [3]. However, the use of this operation in total and subtotal forms of Hirschsprung's disease is impossible.

Recently, laparoscopic HD surgery has become more and more widespread. However, as with

traditional interventions, these operations are also characterized by the possibility of developing postoperative complications in the form of constipation (7.1-22.2%) and infection (8.9-14.8%) [6].

In recent years, they began to study the quality of life of patients with various diseases, the effectiveness of their treatment and rehabilitation [4]. When assessing the results of surgical treatment of Hirschsprung's disease, it is especially important to study one of the aspects of the quality of life - the indicator of vital activity.

Purpose of the study. To study the indicators of functional activity and quality of life of children with Hirschsprung's disease operated on with the De La Torre-Ortega method.

Materials and methods. The study included 21 children operated on for Hirschsprung's disease at the clinical bases of the Department of Pediatric Surgery of the Andijan State Medical Institute. The patients were between 2 and 18 years old. 4 (19.04%) patients were admitted to the clinic in the stage of decompensation, 12 (57.14%) - in the stage of subcompensation, 5 (23.8%) - in the stage of compensation.

13 (61.9%) children underwent the improved De La Torre-Ortega technique and 8 (38.1%) children underwent transanal colon resection according to the classical Soave-Lenyushkin technique.

During the study of the quality of life, children with Hirschsprung's disease and their parents filled out the PedsQL ™ 4.0 questionnaire, translated into Uzbek - child and parent forms, respectively, before surgery and 1 year after surgery [4, 5].

The study included children from 2 years of age (the minimum age for assessing the quality of life). Considering the small number of those surveyed, the results of the questionnaire survey of children of different ages were combined, respectively, and the answers of the parents were also combined. For a comparative assessment, 15 healthy children were also interviewed.

The questionnaire consisted of 21 questions, which are represented by the following scales:

• physical functioning (FF) - 8 questions,

• emotional functioning (EF) - 5 questions,

• social functioning (SF) - 5 questions,

• role functioning (RF) - functioning in kindergarten (FDS) or school functioning (SHF) - 3 questions (depending on the age of the children).

1. Physical Functioning (PF), reflecting the degree to which the physical condition limits the performance of physical activities (self-care, walking, climbing stairs, carrying weights, etc.).

2. Emotional functioning (Role-Emotional - RE) involves an assessment of the degree to which the emotional state interferes with the performance of work or other daily activities (including spending more time, reducing the volume of work, reducing its quality).

3. Social Functioning (SF), defined by the degree to which a physical or emotional state limits social activity (communication).

4. Role-Physical Functioning (RP) - the influence of physical condition on daily role-playing activities (work, performance of daily

duties). The questionnaire is divided into blocks by age - 5-7, 8-12 and 13-18 years old, which have forms for filling out by children and parents, and a block for children 2-4 years old (filled only by parents). For children under 5 years old, the parents answered the questions, from the age of 5 - the children themselves. The child and the parents were asked to choose one of the proposed answers to each question in the corresponding (child and parent) form of the questionnaire.

The number of points for all modules is calculated on a 100-point scale after the lyration procedure: the higher the final value, the better the quality of life.

The statistical significance of the obtained measurements when comparing the mean values was determined by the criterion (a (t) with the calculation of the probability of error (P). The flawiness of the distribution (- the kurtosis criterion) of the equality of general variances (F - Fisher's test). The level of reliability $P < 0.05$.

RESULTS AND DISCUSSION

When comparing quality of life indicators in the group of healthy children and in the main group before surgery (Table 1), the total score (OB) in the main group before surgery (d / h) was 52.8 ± 10.0 ($t = 9.61$, $p < 0.001$), while in healthy children this indicator varied within 79.6 ± 6.7.

Table 1.

Quality of life indicators in the group of healthy children and in the main group before surgery

Scale	Standard values (n = 15)	The main group - d / c (n = 21)	t	
			Meaning	P
Physical functioning (FF)	84,3±9,2	52,9±11,9	8,93	<0,001
Emotional functioning (EF)	76,7±10,1	54,3±11,0	6,31	<0,001
Social functioning (SF)	83,3±7,2	51,7±10,6	10,62	<0,001
Role functioning (RF)	74,0±8,3	52,4±8,7	7,54	<0,001
Total score (average) (OB)	79,6±6,7	52,8±10,0	9,61	<0,001

When comparing quality of life indicators in the study groups 12 months after surgery, the results changed with a positive trend (Table 2.).

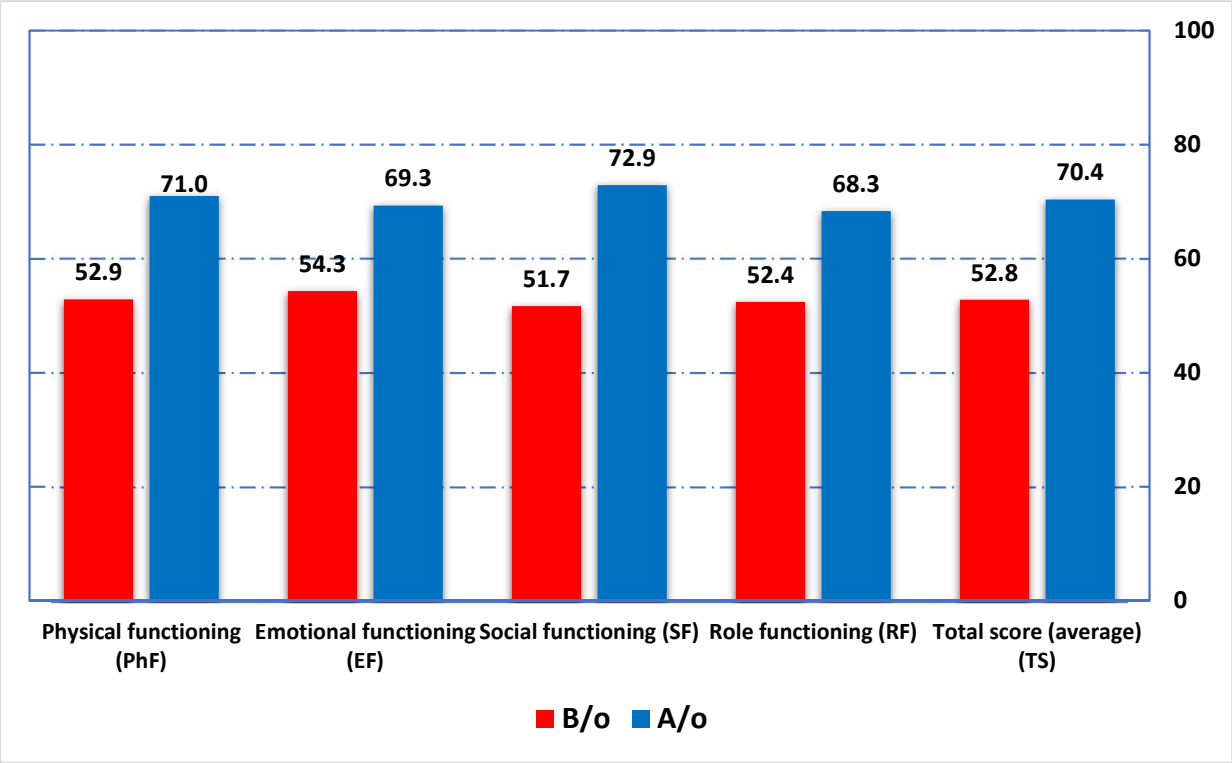
Table 2.

Quality of life indicators in the compared groups 12 months after surgery

Scale	The main group - n / a (n = 21)	t to normal		Comparison group - п/о (n=15)	t to normal		t between groups	
		value	P		value	P	value	P
Physical functioning (FF)	71,0±8,6	4,41	<0,001	64,7±7,2	6,51	<0,001	-2,38	<0,001
Emotional functioning (EF)	69,3±7,6	2,38	<0,05	64,3±5,9	4,07	<0,001	-2,19	<0,05
Social functioning (SF)	72,9±6,4	4,48	<0,001	65,7±8,6	6,07	<0,001	-2,73	<0,01
Role functioning (RF)	68,3±6,0	2,26	<0,05	62,7±5,0	4,55	<0,001	-3,10	<0,001
Total score (average) (OB)	70,4±6,4	4,15	<0,001	64,3±4,4	7,39	<0,001	-3,37	<0,001

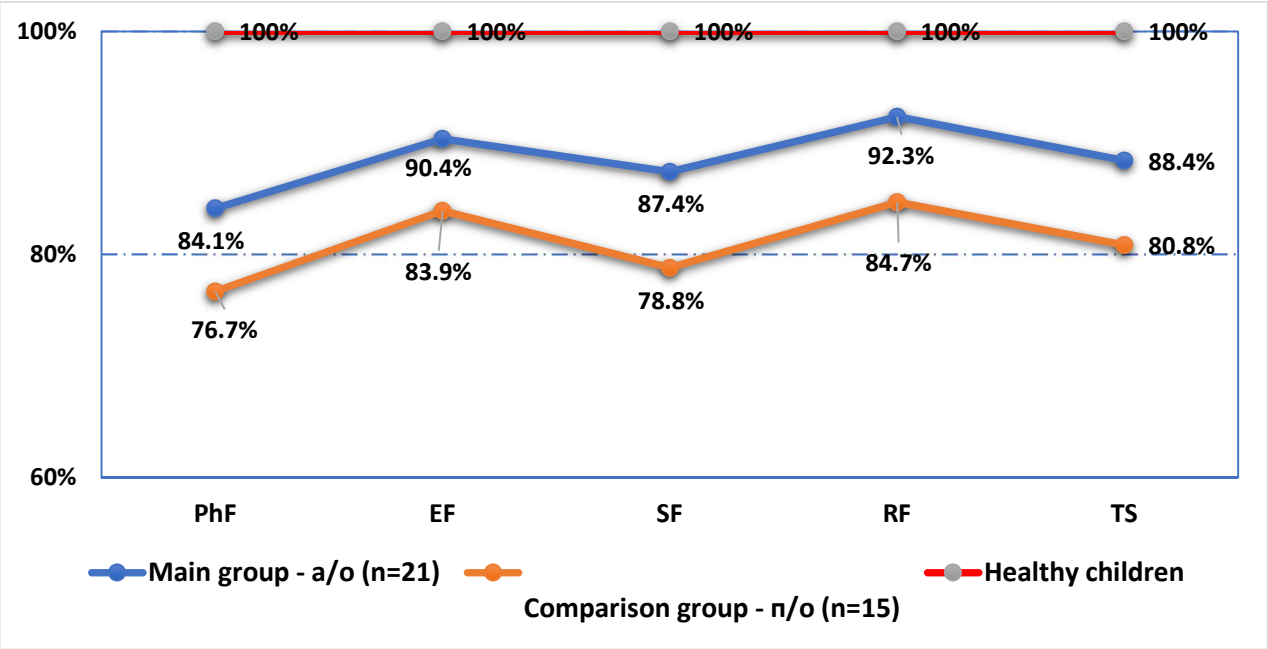
Thus, the index of FF, EF, SF, RF and OB in all patients of the main group improved significantly. In particular, FF in the main group after surgery was 71.0 ± 8.6 (t = 4.41; P <0.001), in the comparison group - 64.7 ± 7.2 (t = 6.51; P <0.001).

In fig. 1. shows the dynamics of the quality of life indicator in the main group before and 12 months after surgery in children with HD. Quality of life indicators in the main group in children with HD improved: SF by 1.4 times (from 51.7% to 72.9%) (t = 7.81; p <0.001), 1.3 times FF (from 52, 9% to 71.0%) (t = 5.65; p <0.001), EF (from 54.3% to 69.3%) (t = 5.14; p <0.001) and RF (from 52.4% to 68 , 3%) (t = 6.90; p <0.001), and the OB indicator increased from 52.8% to 70.4% (t = 6.79; p <0.001).



Rice. 1. Dynamics of the quality of life indicator in the main group before and 12 months after surgery

A more vivid picture of the ratio of quality of life indicators in comparison groups 12 months after surgery to healthy children can be seen in the diagram in Fig. 2.



Rice. 2. The ratio of quality of life indicators in comparison groups 12 months after surgery to healthy children

Thus, the ratio of quality of life indicators in children with HD in the postoperative period to healthy children was minimized in terms of "role functioning" (92.3%), "emotional functioning" (90.4%) and "total score" (88.4%) respectively.

Thus, the analysis of the quality of life of children with Hirschsprung's disease showed a significant increase in indicators on all scales one year after surgery, while the degree of improvement was higher ($p < 0.05$) when the improved technique of De La Torre-Ortega surgery was performed (on average from 62.0-70.8% on all scales before surgery to 84.1-92.3% in relation to the group of healthy children) with a change in the total score from 52.8 ± 10.0 to 70.4 ± 6.4 ($t = 6.79$; $p < 0.001$), in turn, transanal colon resection according to the classical Soave-Lenyushkin technique made it possible to achieve compliance with the group of healthy children on average at the level of 76.7-84.7% with an increase the indicator of the total score only up to 64.3 ± 4.4.

The use of the modified De La Torre-Ortega method of surgery in children with Hirschsprung's disease made it possible to improve all the main parameters for assessing the quality of the course of the immediate postoperative period ($p < 0.05$ - compared to the indicators of the duration of anesthesia, recovery of peristalsis, the onset of enteral nutrition and the timing of activation of patients). and also to reduce the overall incidence of complications from 63.8% to 31.6% ($\chi2 = 8.743$; $Df = 1$; $p = 0.004$) and, accordingly, the period of hospitalization from 22.1 ± 3.2 to 15.1 ± 5.2 days ($t = 7.23$; $p < 0.001$).

Improving the tactical and technical aspects of the surgical treatment of children with Hirschsprung's disease in conjunction with a comprehensive program of postoperative rehabilitation made it possible to improve the functional results, the value of which was more consistent with the normative indicators in healthy children.

CONCLUSIONS

1. During follow-up up to 12 months after surgical treatment of children with Hirschsprung's disease in the study group, there was a decrease in the frequency of functional-organic complications (stenosis of the anal canal, constipation, encopresis) from 40.4% to 18.4% ($\chi2 = 4.792$; $Df = 1$; $P = 0.029$), which in general made it possible to increase the share of good results from 46.8% to 73.7% ($\chi2 = 7.046$; $Df = 2$; $P = 0.030$).

2. Analysis of the quality of life of children with Hirschsprung's disease showed a significant increase in indicators on all scales one year after surgery, while the degree of improvement was higher ($p < 0.05$) when performing the improved technique of De La Torre-Ortega surgery (on average from 62 , 0-70.8% on all scales before surgery to 84.1-92.3% in relation to the group of healthy children) with a change in the total score from 52.8 ± 10.0 to 70.4 ± 6.4 ($t = 6.79$; $p < 0.001$), in turn, transanal colon resection according to the classical Soave-Lenyushkin technique made it possible to achieve correspondence to the group of healthy children on average at the level of 76.7-84.7% with an increase in the total score only up to 64.3 ± 4.4.

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