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RESULTS OF TREATMENT OF CHRONIC COLOSTASIS AND HIRSCHSPRUNG'S DISEASE

Chronic colostasis (CCS) is an actual and not fully resolved problem in pediatrics in general, and in pediatric surgery [4,5]. Despite the modern development of coloproctology, many aspects of diagnostic and treatment algorithm, as well as questions of rehabilitation after conservative and surgical treatment are still unresolved, controversial and are in need of further verification and clarification [4, 7, 8].

During the literature review of surgical treatment of children with CCS and Hirschprung's disease (HD), in a sufficient percentage (up to 30-40%), in a further period a large number of complications such as, gas and stool incontinence, relapses on constipation, stenosis of anastomoses [1, 4, 5, 6,]. A significant number of patients after multiple surgical interventions, have expressed adhesion processes in abdominal cavity, what is directly related to the traumatic nature of reconstructive operations, and lengthens the terms for rehabilitation [3]. These groups of children are placed on a list and treated in specialized departments, more often in Republican and Federal centers, as they require adequate rehabilitation therapy, which are unable to carry out in clinic services in central cities of Russia, not talking of remote areas. The reasons for such appeals, for a purpose to provide medical assistance, are persistent functional disorders, due to which child becomes disabled.

The **aim** of the study was to evaluate the immediate and long-term results of conservative and surgical treatment of CCS and HD.

To achieve the goal, we examined and treated 108 children with various forms of chronic colostasis. Patients were divided in to 3 groups according to a clinical classification of CCS by A.I. Lyonyushkin. In group with compensated form of chronic colostasis, were included children with episodic disorders in functioning of colon. Constipations with a presence of an independent defecation lasted for 2-3 days. In subcompensated form of disease children complained about periodic constipations with a followed independent defecation, that did not bring relief. Children were ill during several years and the: abdominal pain, flatulence, and accumulation of fecal matter in the colon appeared. In children with decompensated form of CCS clinical picture was characterized by a more noticeable disorders in functioning of colon. The delay of stool was persistent and lasted up to 7 days and more, independent defecation did not bring relief. The abdomen was enlarged, paradoxical encopresis was observed.

Compensated form of chronic colostasis was diagnosed in 37 (34,26%) children, subcompensated in 48 (44,44%) and decompensated in 23 (21,29%) (Diagram 1)

Study included children aged from 1 to 17 years. The detailed distribution of children by age and form of CCS is illustrated in Table 1.

In 37 patients with compensated form, the treatment began of following conservative measures: diet, laxatives, physiotherapy, exercise therapy and massage of anterior abdominal wall. The diet included vegetables, salads on

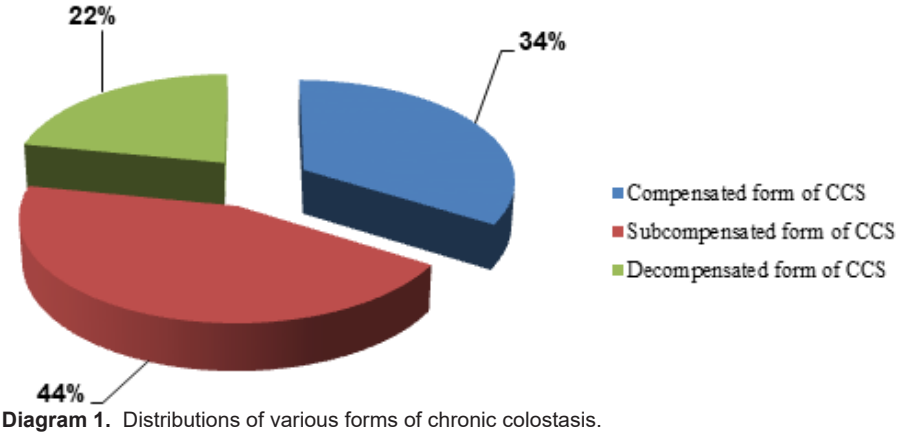

Diagram 1. Distributions of various forms of chronic colostasis.

Table 1

Distribution of patients by age and form of disease

Age periods, years	Form of chronic colostasis		
	Decompensated	субкомпенсированная	декомпенсированная
Early childhood (1-3)	7	18	10
Preschool (4-7)	10	12	3
School (8-11)	12	9	3
School (12-17)	8	9	7
Total	37	48	23

vegetable unrefined oil, as well as fresh fruits and dried fruits with a predominant content of plum, dried apricots and raisins, bread of coarse black grinding in a constant ration, with adding a bran in it. Drug treatment was carried out comprehensively, taking into account all disorders that were revealed during the examination, and the dynamics of changes in blood tests (detailed general and biochemical).

After the first course of conservative treatment in patients with compensated form of CCS, after the discharge, a persistent improvement was noted in 85,4% of patients (n=41). At a repeated hospitalization (3 months after diagnosis), only in 7 (25,9%) of patients have remained complaints of stool retention. That required additional comprehensive courses of therapy, with achieving of satisfactory results of treatment.

Complex of conservative therapy in group of patients with compensated from of CCS (n=48) fundamentally did not differ from that in patients with compensated form of disease. It included the following main components: correction of diet, that included foods that are high in fiber, and an increase in the amount of fluid in patients ration. As in previous group, physiotherapy was performed (electrophoresis with KI, electrostimulation of colon, paraffin-ozokerite, etc.), exercise therapy and abdominal massage.

When the constipation is combined with encopresis, an electrostimulation of neuro-muscular apparatus of rectum with diadynamic currents was performed.

The vitamins of “B” group (B1, B6, B12), proserine in age-related dosage were prescribed. For all patients with subcompensated form of CCS, additionally was held an compulsory antioxidant therapy, that included multivitamins and vitamin “C”, as well as vitamins PP, E, K, A.

To correct the revealed disorders at hemostasis system, disaggregants were prescribed. For restoration of microbiota of the colon pre and probiotics were used, in harsh dysbiosis, bacterostatics were used at age-related dosage. Treatment with bacilli continued for at least 2 months after diagnosis with subsequent control at repeated hospitalization.

In patients with subcompensated form of CCS (n=23), in 3 kids from this group, after first course of conservative therapy, a “persistent positive effect” was noted. The periodicity of defecation increased to 1 time in 2 days after first course of conservative therapy.

In 7 children idiopathic megarectum was detected, with no positive effect from the held therapy, it is worth noting that of this children was from 14 to 17 years, and these are the children who are from early age suffered from constipation and did not receive appropriate therapy before contacting our clinic. For them was performed the laparoscopically assisted low anterior resection on left parts of colon, with formation of above-anal colorectal hardware anastomosis. In 10 children the Hirschprung’s disease diagnosis was verified, of which in 2 cases the subtotal form of disease was detected, all children were aged from 1 to 2 years, in all cases there was no independent defecation. In 6 cases in children recto-sigmoid form of HD, laparoscopically assisted resection of left parts of colon, with formation of above-anal colorectal anastomosis by Soave-Georgeson, was performed. In 2 cases laparascopically assisted subtotal colectomy with a turn of colon by 1800, with formation of above-anal colorectal anastomosis was performed.

Properly 3 children have diagnosis of subcompensated form of CCS, not amenable for conservative therapy. These patients underwent laparoscopically assisted intraperitoneal left-sided hemicolectomy with formation of above-anal colorectal anastomosis.

In most cases (78,3%), in postoperative period no complications was observed, children were discharged from hospital after 10-12 days. With a control examination after 1 month, 6 months and 1 year. At the stages of postoperative rehabilitation, children received corrective therapy in the form of pro and prebiotics, drugs from group of trimebutine maleate (Trimedat), complex physiotherapy.

For one child a sigmostoma was imposed in a newborn period due to low intestinal obstruction. At age of 4 months – elimination of stoma, resection of part of intestine, imposition of anastomosis. In early postoperative period – suppuration of the wound, preservation of manifestations of low intestinal obstruction, bloating. Cecostoma was imposed. In age of 1 year and 11 months laparotomy, separation of adhesions, Svenson’s operation, closure of

Table 2

Distribution of patients by etiology and pathogenesis of functional disorders after surgery on cause of Hirschprung’s disease

Pathogenetic causes of functional disorders	Number of patients	Conservative therapy	Surgical therapy
Cicatricial stenosis, deformation of anasto-mosis	2	2	-
Mental diseases	2	2	-
Multi-staged operations	2	-	2

Table 3

Evaluations of the results of questionnaire survey of children and parents

Evaluation criteria	Criteria characteristic	Score in points
Frequency of defecation	1-2 times a day	2
	3-5 times a day	1
	More then 5 times a day	0
Encopresis	Absence	2
	In stressful situations	1
	Always	0
Constipations	Everyday defecation	2
	Defecation 1 time per 2-3 days	1
	Defecation less often than 1 time per 3 days	0
Ability to delay defecation	For minutes	2
	For seconds	1
	Abscence	0
The form of stool	Formalized	2
	Liquefied	1
	Liquid	0
The need for any therapy	No	2
	Sometimes	1
	Always	0

colostoma was performed.

Cecostoma was imposed to another child at age of 7 months, to discharge the colon. This patient entered children's surgery hospital in an emergency order, with a suspicion of intestinal obstruction. A laparotomy was performed, during which 2 zones of disgangliosis in sigmoid were identified. Was operated again in age of 10 months – relaparotomy, resection of 20 cm of sigmoid, imposing anastomosis "end to end". After 13 days extraperitoneal closure of cecostoma was performed.

Analysis of long term results of surgical treatment of children with decompensated form of CCS and Hirschprung's disease was performed in 20 patients (18,5% (n=108) in the study and 86,9% (n=23) in group with subcompensated form of CCS), in age from 1 to 17 years (two were operated in emergency order).By age, material was distributed as follows; 1 – early childhood (1-3 years); 2 – preschool age (4-7 years); 5 – adolescence (12-17 years).

In long-term postoperative period the following complications were occurred: relapse of constipations – in 2 patients, on the background of anastomosis, incontinence of feces – 2, incontinence of urine – in 1 case (Table 2).

Patients underwent irrigography, sigmoidoscopy, ultrasound examination of intestine, a questionnaire and clinical examination (Table 3).

According to the tables, 18-17 points corresponded to normal physiological

Table 4

Evaluation of results of clinical examination of children

Evaluation criteria	Criteria characteristic	Score in points
Appearance of the anus	Serried	2
	Partly serried	1
	Gaping	0
Ampulla of rectum	Not expanded	2
	Slightly expanded	1
	Extensively expanded	0
Stenosis of anastomosis	No	2
	Minor	1
	Expressed	0

intestinal functions, i.e., social adaptation; 16-14 points – satisfactory social adaptation, some limitations of social life; 13-10 points – significant limitations of social life (poor social adaptation); 9 and lower points – total incontinence of feces (complete social disadaptation).

According to the results of the treatment, based on sums of points (tables 3,4), all patients were divided into 4 groups: the 1st group (18-17 points according to the questionnaire survey) - 77 patients (71.3%), the result was regarded as «excellent»; The 2nd group (16-14 points) - 24 (22.2%), the result is regarded as «good»; The third (13-10 points) - 5 (4.6%), the result is regarded as «satisfactory» and the 4th (below 9 points) - 2 (1.9%), this result is regarded as «unsatisfactory», this children underwent further reconstructive-restorative operations, with a long rehabilitation course.

All patients operated for case of chronic colonic stasis and Hirschsprung's disease received a comprehensive rehabilitation program that included: mandatory supervision of a pediatric surgeon, a child psychologist, a neurologist and a rehabilitation specialist, what improved the quality of life of operated children and allowed to achieve good long-term results.

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