

## The use of ART scales to determine the dynamics of regeneration of transplanted stem cells with atresia of the anus

N.V. Kartashova, I.S. Tikhonova, E.N. Petritskaya, L.F. Abaeva  
(MONIKI named after M.F. Vladimirsky, Moscow, Russia)

In the Department of Pediatric Surgery of the MONIKI them. M.F. Vladimirsky, children with congenital malformations of the anorectal region, which make up the most severe group of patients, are concentrated. Despite significant achievements in the field of pediatric surgical correction of anorectal defects, the percentage of unsatisfactory results remains high, and the frequency of this pathology does not tend to decrease (Ashkraft K.U., Holder T.M. 1997; Lenyushkin A.I. 1990.)

The treatment of children with anorectal pathology presents great difficulties, which is associated with a variety of pathologies that require various options for surgical correction and rehabilitation, lasting for years, with repeated hospitalizations and a change in treatment regimens.

The urgency of the problem is also due to the fact that in the long term after surgical treatment, a large number (from 30-60%) of complications such as sphincter insufficiency of varying severity, persistent chronic constipation, stenosis in the area of the created anal ring, prolapse of the mucous membrane are revealed, which prevents complete closure of the formed neoanus and leads to kalomazaniya (Molchanov N.N., Grebnev P.N. 1997; Smirnov A.N. et al. 1990; Lenyushkin A.I., Chuplan I.I. 2001, etc. ). All this leads to a violation of social adaptation and the quality of life of children with congenital anorectal pathology. One of the innovative approaches in the treatment of hypoplasia of the anus or total aplasia of this zone is the technique of autotransplantation of bone marrow stem cells into the zone of formation of the anus. Anomalies of congenital atresia of the anus include a violation of the embryonic anlage not only of the striated muscles of the pulp, but also of the neurovascular bundle. When bone marrow is transplanted into the area of the anus being formed, the substance is injected into the area of connective tissue. In this case, the nutritional structure of the connective tissue occurs through the capillary bed and diffusely. It should be emphasized that the biochemical activity of connective tissue is much lower than that of muscle tissue and bone marrow, therefore, the introduction of cells into the hypoxic zone causes the risks of the evolution of stem cells into connective tissue. In this case, the nutritional structure of the connective tissue occurs through the capillary bed and diffusely. It should be emphasized that the biochemical activity of connective tissue is much lower than that of muscle tissue and bone marrow, therefore, the introduction of cells into the hypoxic zone causes the risks of the evolution of stem cells into connective tissue. In this case, the nutritional structure of the connective tissue occurs through the capillary bed and diffusely. It should be emphasized that the biochemical activity of connective tissue is much lower than that of muscle tissue and bone marrow, therefore, the introduction of cells into the hypoxic zone causes the risks of the evolution of stem cells into connective tissue.

### Research objectives:

1. To study the anatomical and physiological states of the structures of the anorectal region after surgical correction and in the long term after treatment.
2. Develop a differential approach to the use of vegetative resonance scales that meet the requirements for determining tissue regeneration.
3. To develop an algorithm for rehabilitation measures after anorectoplasty in children.

### Materials and methods

The study included children of 6 people aged 3-14 years. The aim of the study was determination of diagnostic criteria for regeneration and differentiation of the trunk new cells in a cross-striped tissue for the formation of muscle vegetative bagasse anus. IN examination method resonance testing were included:

- TREPANG regeneration scale from 1 to 21 days.
- (SRT) Connective tissue scale (1-100 points). (SHST)
- Morphological scale of tissue condition. (IDF)
- Resonant scale of anabolic and catabolic processes in tissues (SHSTN)

Scale of private biological indices of connective tissue and muscle tissue of the anus. (ShchBI).

Development of general rehabilitation measures to prevent constipation, colitis and infectious-toxic burdens of organs and systems.

NOVELTY: For the first time, the anatomical and functional state of the anorectal region is assessed before, in the postoperative period and in the long-term rehabilitation period by the method of vegetative resonance testing. For the first time, rehabilitation programs are being developed using bioresonance effects, which may reduce the number of inevitable complications in the treatment of this complex pathology.

The preliminary results of the study are shown in table. one.

Table 1

ART studies of children before bone marrow transplantation

into the anus, 3 days after surgery, 7 days, 1 month ( $\pm 10$  days)

Child		ShRT scale with 1 to 21 days	Connection scale fabrics (1-100 points). (SHST)	Morfol. scale (IDF)	SHAKP anus	SHLO1-5 st.	Scale hBI anus
Girl Z., 9 years old	before	Not tested.	10 tbsp.		1 tbsp.	Not tested.	3
	3 days	Regener. 2-5 days	26 Art.	Parenchymal dystrophy	3-4 st.	5 tbsp.	18
	7 days	Regener. 11-13 days	40 Art.	ischemia	3 tbsp.	3 tbsp.	21
	30 d.	Regener. Day 14	52 Art.	Compensatory hyperplasia	2 tbsp.	1 tbsp.	fifteen
Boy K., 13 years old	before	Not tested.	15 Art.		1 tbsp.	Not tested.	4
	3 days	Regeneration 3-5 day	23 Art.	Parenchymal dystrophy	3 tbsp.	4 tbsp.	nineteen
	7 days	12-15 day	38 Art.	ischemia	3 tbsp.	4 tbsp.	17
	30 d.	15-16 day	43 Art.	ischemia	2 tbsp.	1 tbsp.	five
Boy P., 3 years	before	Not tested.	10 tbsp.	fibrosis	1 tbsp.	Not tested.	five
	3 days	Day 5	12 st	fibrosis	4 tbsp.	5 tbsp.	13
	7 days	Day 10	34 Art.	Compensatory hyperplasia	5 tbsp.	4 tbsp.	18
	30 d.	Day 18	50 Art.	Compensatory hyperplasia	2 tbsp.	1 tbsp.	10
Boy L., 4 years	before	Not tested.	18 Art.	Fibrosis	1 tbsp.	Not tested.	4
	3 days	Day 10	34 Art.	ischemia	5 tbsp.	5 st	twenty
	7 days	15-17 days	40 Art.	Ischemia	4 tbsp.	3 tbsp.	21
	30 d.	Day 20	50 Art.	hyperplasia	2 tbsp.	1 tbsp.	12

#### conclusions

Based on these scales, the following conclusions can be drawn. The TREPANG regeneration scale reflects the dynamics of the regeneration differentiation and differentiation of stem cells into the striated musculature of the anus, which correlates with the clinical data of myography and the ability of the anus sphincter to maintain tension in this area by the end of the month after stem cell transplantation.

The morphology scale reflects the dynamics of tissue transformations, and also emphasizes the ischemic component of this zone, which prevents more pronounced results.

The scale of bioindexes and anabolic processes in tissues emphasizes a significant activation of tissue regeneration a week after transplantation and a decrease in the rate of regeneration by 30-40 days, which indicates the possibility of repeated transplantation not earlier than in a month.

The greatest tissue edema is determined during the first 7 days (lymphatic congestion from the 3rd to the 5th degree) and is practically not tested by the 30th day.

The tissues are most active and regenerated 7 days after edema reduction and after compensation of surgical tissue trauma.

The biological effect of tissue differentiation on the connective tissue scale up to the level of 50-55 points corresponds to partial replacement of connective tissue with muscle, while with the complete formation of striated tissue in the anus, the Connective tissue scale level in healthy people corresponds to 90-100 points.

#### Bibliography:

1. Krorchkin L. et al. Cell transplantation and tissue engineering. - Novosib., 2005.
2. Korochkin L.I. et al. What are stem cells. - Novosib., 2007.
3. Friedenstein A.Ya. Bone marrow stem cells. - M., 2000.
4. Abstracts and reports of the XII International conference "Theoretical and clinical aspects application of bioresonance and multiresonance therapy". Part I, II. - M.: IMEDIS, 2006.
5. Isakova Yu.F., Lopukhina Yu.M. Operative Surgery with Pediatric Topographic Anatomy age. - M., 2000.

N.V. Kartashova, I.S. Tikhonova, E.N. Petritskaya, L.F. Abaeva Using ART scales to determine the dynamics of regeneration of transplanted stem cells during atresia of the anus //

" - M.: "IMEDIS", 2009, v.1 - C.346-352