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**Aim of study.** Improving the quality of life of patients with chest deformities, by applying advanced, minimally invasive technologies in surgical treatment.

**Materials and methods.** In the "Sfânta Treimea" SCM and the "Galaxia" clinic during the years 2017-2022, 46 patients, aged 17-51 years, with clinical-imaging manifestations of thoracic insufficiency syndrome, caused by chest malformations, were operated on: 39 (83.8%) patients with an excavated chest (gr.II-III), in which the mini-invasive Nuss procedure was used (in our modification) and 7 (16.2%) patients with a carinated chest type chest deformity, in which mini invasive Abramson procedure (in our modification) and Ravici procedure were used.

**Results.** Good – in 38 (83.3%) patients, satisfactory – 8 (16.7%) patients, unsatisfactory – not observed. The analysis of the results of the quality of life of children with scoliosis (according to the "EQ-5D" questionnaire), even after the surgical interventions, demonstrated that in the postoperative period the quality of life improved compared to the preoperative period - from a score of  $11.7 \pm 0.3$  to at  $6.7 \pm 0.1$ .

**Conclusions.** The most beneficial method of correcting the deepening deformities of the thorax is the Nuss minimally invasive procedure, while the Abramson mini invasive procedure being the one for the deformity caused by carinated chest, in some cases, the operation according to the Ravich method remains relevant. Attempts at conservative treatment of patients with chest deformity is a mistake that leads to the formation of irreversible changes and complications in the function of the cardiopulmonary system, the syndrome of thoracic insufficiency. Timely surgical correction of chest deformity is the only way to prevent the critical progression of dysfunctions of the chest organs.

**Keywords.** Thoracic insufficiency syndrome, rib cage deformation, Nuss operation

## TERAPIA PENTRU BOALA HIRSCHPRUNG BAZATA PE CELULE STEM



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Boala Hirschsprung (HSCR) este o anomalie congenitală a colonului care rezultă din eșecul formării sistemului nervos enteric, care duce la un segment disfuncțional îngustat al colonului cu lungimi variabile și care necesită intervenție chirurgicală. Fiziopatologia de bază include un defect în migrarea, proliferarea și diferențierea celulelor crestei neurale, parțial explicate prin modificări genetice și epigenetice identificate. În ciuda ratei ridicate de succes a intervențiilor chirurgicale curative, acestea sunt asociate cu rezultate adverse semnificative, precum enterocolita, incontinența fecală și constipația cronică. În plus, unii pacienți suferă de variante letale extinse ale bolii, toate acestea justificând necesitatea unui tratament alternativ. În ultimii 5 ani, s-au înregistrat progrese considerabile în cercetarea terapiei bazate pe celule stem a HSCR. Cu toate acestea, multe probleme importante rămân nerezolvate. Această revizuire va oferi informații generale concise despre HSCR, va sublinia viitoarele abordări ale terapiei pe bază de celule stem a HSCR, va revizui publicațiile cheie recente, va discuta provocările tehnice și etice cu care se confruntă domeniul înainte de interpretarea clinică și va aborda aceste provocări propunând soluții și evaluând abordările existente pentru a progresa în continuare.

**Cuvinte cheie:** Hirschsprung, Celule stem, terapie

## STEM CELL THERAPY FOR HIRSCHPRUNG DISEASE

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Hirschsprung disease (HSCR) is a congenital anomaly of the colon that results from failure of enteric nervous system formation, leading to a constricted dysfunctional segment of the colon with variable lengths, and necessitating surgical intervention. The underlying pathophysiology includes a defect in neural crest cells migration, proliferation and differentiation, which are partially explained by identified genetic and epigenetic alterations. Despite the high success rate of the curative surgeries, they are associated with significant adverse outcomes such as enterocolitis, fecal soiling, and chronic constipation. In addition, some patients suffer from extensive lethal variants of the disease, all of which justify the need for an alternative cure. During the last 5 years, there has been considerable progress in HSCR stem cell-based therapy research. However, many major issues remain unsolved. This review will provide concise background information on HSCR, outline the future approaches of stem cell-based HSCR therapy, review recent key publications, discuss technical and ethical challenges the field faces prior to clinical translation, and tackle such challenges by proposing solutions and evaluating existing approaches to progress further.

**Keywords:** Hirschsprung, Stem Cell, Therapy