

Introduction. Several interactions exist between thyroid function and rheumatological disorders. Many publications explored the relationship between thyroid diseases (TD) and juvenile idiopathic arthritis (JIA). However, the morphological thyroid changes in patients with JIA were not fully explored. In children affected by JIA the occurrence of other autoimmune diseases has been described in case-reports or small case-series. High-resolution ultrasonography (USG) is the most sensitive imaging modality available for examination of the thyroid gland and associated abnormalities.

Aim of the study. To evaluate ultrasound features of thyroid gland in patients with juvenile idiopathic arthritis.

Materials and methods. Fifty-five patients previously diagnosed with juvenile idiopathic arthritis according to the International League of Associations for Rheumatology Classification criteria were screened for autoimmune thyroiditis. Patients with active disease as well as those in clinical remission were included. The following variables were observed and studied: echogenicity, echotexture, thyroid volume in relation with age and gender.

Results. Our results revealed that 65.6% of patients were girls. The mean age of the studied group was 115.45 ± 6.9 months, the median age at diagnosis was 68.53 ± 8.79 months and the median disease duration was 53.83 ± 8.57 months. The most frequent types of JIA were oligoarticular (43%), polyarticular negative RF (30%) and systemic (21%). The ultrasound examination of thyroid gland revealed abnormalities in 33% cases, most of them cystic changes (28.6%) and hypoechogenicity (23.33%). In 3 cases thyroid nodules were detected. 2 patients presented mean thyroid volume above 2SDS compared to their age reference values. An increased vascular flow pattern on Doppler examination of thyroidal gland was found in 12% of cases. Correlation and regression analysis showed low age at diagnosis and longer duration of the disease to be predictors for those thyroid disorders.

Conclusions. Cystic changes of thyroid gland and hypoechogenicity of thyroid tissue were the most common morphological changes in patients with juvenile idiopathic arthritis. Periodic ultrasound assessment of thyroid volume and texture are recommended in juvenile idiopathic arthritis patients to avoid complications.

Key words: juvenile idiopathic arthritis, thyroid gland, ultrasonography

69. EVALUATION OF DECELULARIZED GRAFTS OF PERITONEUM AND PORCINE PERICARDIUM IN EXPERIMENTAL RECONSTRUCTION OF DIAPHRAGMATIC DEFECTS

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Introduction. Congenital and acquired diaphragmatic defects continue to be a major problem in pediatric surgery. Regenerative medicine could be a valid option in developing techniques for repairing major diaphragmatic defects that could help improve outcomes.

Aim of the study. To identify a biologically acceptable material for closing the major diaphragmatic defects in the experimental models.

Materials and methods. The study included 4 pigs, one month old, weighting 9.8 - 10.2 kg. All animals underwent left subcostal laparotomy, creating a defect of the tendinous part of the hemidiaphragm, which was closed by decellularized grafts of porcine peritoneum (2 animals) and porcine pericardium (other 2 animals). For the decellularization of the biological material sodium dodecyl sulfate was used. The evaluation of the effectiveness of the used implants was based on the postoperative radiological examination and the results of the morphopathological investigations.

Results. Clinical and radiological results in the first postoperative month were the following: in both cases of porcine peritoneum use the relapse of the defect occurred and the animals died at the 58th and 60th postoperative day. Morphopathological examination detected the presence of a diaphragmatic defect in the absence of partial graft, immature tissue being found at the edges of the defect, circumscribed by the plate or the overlap line wave. The animals of the 2nd study group have survived. The radiological examination performed on the 15th postoperative day showed a normal configuration of the newly formed hemidiaphragm; on the 60th postoperative day the normal configuration of the neohemidiaphragm was maintained; on the 90th postoperative day a moderate eventration of the hemidiaphragm has occurred – morphopathological examinations revealed that the tendinous region of the hemidiaphragm was subjected to very thin reconstruction with a transparent and semi-transparent aspect, microgranulated and in plateaus to the intransparent albuminous predominant area.

Conclusions. The preliminary results suggest that decellularized porcine peritoneum grafts are characterized by a lower biosensitivity compared to porcine pericardium, which exhibit acceptable biomechanical properties for the reconstruction of diaphragmatic defects, requiring additional experimental studies to adjust the bioresistance, stiffness and elasticity parameters.

Key words: decellularized grafts, experimental reconstruction

70. SCREENING THE C677T POLYMORPHISM OF THE MTHFR GENE IN ASSESSING DISEASE SEVERITY AND RESPONSE TO METHOTREXATE TREATMENT IN CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS

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Introduction. Existing data regarding the association of the mutation of methylenetetrahydrofolate reductase (MTHFR) gene with methotrexate (MTX) treatment efficacy and side effects in patients with juvenile idiopathic arthritis (JIA) is still contradictory. Therefore, genetic studies of the role of this mutation are necessary in order to provide personalized treatment for this group of patients and decrease the risk of MTX side effects.

Aim of the study. To evaluate the association between the presence of the MTHFR gene mutation and methotrexate responsiveness using Juvenile Arthritis Disease Activity Score (JADAS71), Pediatric ACR 20,50,70,90 Index and Methotrexate Intolerance Severity Score (MISS) in children with JIA.

Materials and methods. A case-control study included 18 children with JIA who had being on MTX treatment for more than 6 months. Clinical and laboratory data of all patients was analyzed in order to determine the JADAS71 Score, Pediatric ACR 20,50,70,90 Index and MISS Score. The JADAS71 Score and Pediatric ACR 20,50,70,90 Index allow assessing disease's activity. The MISS Score is used to evaluate the MTX side effects. The polymorphism C677T of the MTHFR gene was identified using the PCR techniques.

Results. There has been examined 18 children in whom was identified 7 (38.9%) cases of no mutation, 2 (11.1%) cases of T/T homozygotes and 9 (50%) cases of C/T heterozygotes in the 677 nucleotide of the MTHFR gene. The JADAS71 Score was higher in the heterozygote cases with the mean value 18.1 (p=0.0013), compared to the non-mutation sample – 2.7 (p=0.0022). The Pediatric ACR index in heterozygote sample had a mean value of 22% (p=0.0011) clinical improvement compared to the control group - 37% (p=0.001). The MISS score in heterozygotes had a mean value of 7.8 (p=0.0011) points compared to the control group – 4.6 (p=0.001).