GP26 TRANSCATHETER CLOSURE OF SECUNDUM ATRIAL SEPTAL DEFECT: FOLLOW-UP RESULTS FROM A TERTIARY CENTER

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Background and objectives Atrial septal defect (ASD) is a deficiency in the atrial septum leading to an abnormal communication between the right and left atria. Defects of the atrial septum are the third most common type of congenital heart disease comprising 6% of all lesions. Transcatheter closure of secundum type ASD is an alternative to surgical closure in many cases when conditions are appropriate. Studies have shown that closure of secundum type atrial septal defects with devices is a safe and successful method. In this study, we planned to share the demographic datas and postoperative follow-up results of patients with secundum atrial septal defect undergoing transcatheter closure.

Methods Data of patients underwent transcatheter closure of secundum type atrial septal defect between 2004 to 2017 was investigated retrospectively. Gender, age at intervention, defect size (with transthoracic, transesophageal echocardiography), procedure duration, fluoroscopy time, periprocedural complications, residual shunt existence and long term follow-up results were collected.

Results In 179 patients (41% males;%10 adults, median age, 8,1 years [1,3 to 58,6]; weight, 28 kg [11 to 90]), admitted to catheterization for ASD closure. Median ASD size was 13 mm (6 to 30); 74 (41%) patients had a large ASD (≥12 mm). Suitable defects for closure were 165 of 179 patients. Three types of devices were used during procedure most used being Amplatzer Septal Occluder. Procedural success rate was 95,7%. No death was observed but periprocedural complications occurred in 3 patients (1,6%). Periprocedural complications were AV(atrioventricular) block, atrial flutter and brachial plexus paralysis. After a median follow-up of 2,8 years (range 6 months to 13,6 years; 16 patients [10%] followed >10 years), delayed major complications such as death, cardiac erosion, infective endocarditis were not experienced. Delayed minor complications were supraventricular extrasystole not required treatment and mild mitral regurgitation worsening in 2 patients (1,3%). The rate of residual shunt was 1,3% at one year follow-up and all shunts were mild.

Conclusions Transcatheter ASD closure is safe in children with a minimal rate of periprocedural complications and a favorable long-term outcome, especially with no death or major complications. Residual shunt ratio is also low and insignificant. Transcatheter ASD closure can be done safely in experienced centers as an alternative treatment to surgery.

GP27 EXPERIENCE OF USING PULSE OXIMETRY SCREENING IN NEWBORNS TO IDENTIFY PULMONARY HYPERTENSION AND CRITICAL CONGENITAL HEART DEFECTS IN RUSSIA

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Background The urgency of the problem is determined by the high infant mortality and disability associated with critical CHD (CCHD) and persistent pulmonary hypertension in newborns (PPHN). The difficulty of diagnosing critical CHD and persistent pulmonary hypertension in newborns leads to a delayed accurate diagnosis, which is the cause of late hospitalization in specialized hospitals in a difficult and often critical condition. This research paper presents a method for the early detection of newborns with PPHN and critical CHD using pulse oximetry, which differs from the existing methods by the beginning of the saturation measurement time, as well as an extended diagnostic search for conditions that threaten the life of the newborn.

Purpose Assess the diagnostic value of pulse oximetry conducted by an infant at an earlier period (at 3 o'clock after birth) in order to identify newborns with persistent pulmonary hypertension and critical congenital heart defects.

Methods The work was carried out on the basis of the maternity hospital of the Republic of Tatarstan of the Russian Federation. The study included all newborns born alive for a period of more than 34 weeks of gestational age without prenatally confirmed pathology of the cardiovascular and pulmonary systems. Newborns are screened twice: in the third hour of life, which ensures early diagnosis of persistent pulmonary hypertension of newborns and critical CHD, and on the 3rd day after birth, that is, before vaccination against tuberculosis, since vaccination may worsen the condition of a newborn with undiagnosed pathology. Pulse oximetry is performed at any time if the newborn has any clinical manifestations of critical conditions.

Results For the period from April 2016 to December 2017 screening covered 19,110 newborns. Positive screening results were obtained in 242 patients. Thanks to screening, in 29 newborns in the first hours of life, congenital heart defects that were not diagnosed prenatal were detected, 6 of them were critical. All newborns with critical CHD were transferred for emergency indications to the cardiac surgery department and successfully operated. Persistent pulmonary hypertension was detected in 34 patients. Congenital pneumonia was diagnosed in 104 newborns.

Conclusion Early detection of life-threatening conditions allowed time to begin therapy, to avoid deaths and critical complications. In addition, during the screening, other concomitant conditions accompanied by hypoxemia were also diagnosed. In addition to the early detection of critical CHD using pulse oximetric screening, other diseases can be identified, including persistent pulmonary hypertension of the newborn and congenital pneumonia.

GP29 THE EFFECT OF 2015 REVISED JONES CRITERIA ON ACUTE RHEUMATIC FEVER DIAGNOSIS

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Objective Consistent with the high risk countries, the incidence of acute rheumatic fever (ARF) in school age children is reported to be 21–42/100.000 in Turkey. According to the Jones criteria, which the American Heart Association updated in 2015, monoarthritis and polyarthritis were major, fever

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above 38 ° C, erythrocyte sedimentation rate over 30 mm/h and monoarthralgia were defined as minor diagnostic criteria in middle and high risk populations. The aim of this study is to determine the effect of new diagnostic criterias on our clinical practice.

Methods Among a total of 1132 patients hospitalized in our Pediatric Cardiology Clinic between 2013 and 2019, data of 58 patients were diagnosed with ARF were investigated and the 3-year period before and after the updated Jones criteria were compared.

Results Fifteen of the 493 patients hospitalized between 2013–2015, 43 of the 639 patients hospitalized between 2016–2019 were diagnosed as ARF. There was a significant increase in the number of patients with ARF during the updated diagnostic criteria ($p = 0.007$). Joint complaints were in the foreground in both periods and there was no difference between the distribution of patients who were evaluated as clinical and subclinical carditis ($p > 0.05$). In the previous period, there was no patient in whom monoarthritis and polyartralgia were accepted as major diagnostic criteria but, in the last three years, of the 17 patients, 8 had monoarthritis and 9 had polyarthralgia as the major diagnostic criteria. Of the ARF patients with polyartalgia defined as the major diagnostic criteria, 6 patient underwent diagnostic changes; 2 had juvenile idiopathic arthritis, 3 had familial Mediterranean fever and 1 had systemic lupus erythematosus. In all of these patients with high ASO levels, except for two patients with subclinical carditis, the diagnosis of ARF was made by polyartralgia, fever and high acute phase reactants. In a patient with carditis findings besides polyartalgia, the association of ARF and Takayasu arteritis was defined at the 8th month of follow-up.

Conclusion With the updated Jones criteria, the number of patients diagnosed with ARF are increased. However, in the follow-up, some patients diagnoses were changed as collagen tissue diseases and vasculitis. New criterias may lead to diagnosis of some cases of ARF that may be overlooked, but may also lead to over-diagnosis. Therefore, collagen tissue diseases and vasculitis should be considered in the differential diagnosis of patients with polyartalgia, especially in patients with atypical joint involvement without carditis.

GP30 ASSOCIATION OF ACE GENE INSERTION/DELETION POLYMORPHISMS WITH HYPERTENSION IN CHILDREN WITH GLOMERULONEPHRITIS

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Background Kidney diseases are a common cause of secondary hypertension in children, which determines an unfavourable prognosis of the underlying disease. The secondary hypertension is a multifactorial complex disorder caused both by genetic and environmental factors. According to estimations approximately in 30% of cases, the interindividual variability in blood pressure is genetically determined. Numerous studies focused on the role of genetic variation in genes implicated in the renin-angiotensin system (RAS), particularly the angiotensin-converting enzyme (ACE) gene. The purpose of our study was designed to explore association of angiotensin converting enzyme (ACE) gene insertion/deletion (I/D) polymorphism with secondary hypertension in a group of children with glomerulonephritis.

Methods The study included two groups of children with glomerulonephritis, one of them - hypertensives (cases) and another group - normotensives (controls). Group with hypertension comprised 35 children, age 10.46±2.93 years (20 males and 15 females), group without hypertension included 26 children, age 9.61±3.18 years (18 males and 8 females). The variant genotype of ACE gene (I/D polymorphism; rs4646994) was determined using polymerase chain reaction (PCR). DNA was extracted from blood samples. DNA fragments length analysis after amplification and restriction was carried out in 7% acrylamide gel. Statistical analysis was performed using STATISTICA, version 10.0 StatSoft Inc, USA.

Results We determine the distribution of genotype and allele frequencies in the hypertensives and normotensives groups of children with glomerulonephritis. The analysis showed that the frequencies of genotype II, ID, DD of ACE gene in the group of hypertensives were 14.3%, 25.7%, 60%, in the group of normotensives were 76.9%, 15.4%, 7.7%. We found statistically significant higher frequency of DD genotype ($\chi^2 = 8.44$; d.f.=1; $p=0.004$) and D allele ($z=6.1$; $p=0.001$) in the hypertensives group in comparison with the normotensives group of children. We calculated the probability of DD genotype detection in the group of patients with glomerulonephritis by the odds ratio (OR) was calculated with 95% confidence interval (95% CI). Patients with the DD genotype had a higher risk of hypertensives than patients with the II, ID genotypes (OR: 18; 95% Cl: 3.66 - 88.55).

Conclusions The findings revealed significant influence of I/D polymorphism of ACE gene on hypertension in the groups of children with glomerulonephritis. There are significant associations between DD genotypes and secondary hypertension in children with glomerulonephritis.

GP31 ENDOTHELIAL DYSFUNCTION AS THE MAIN COMPONENT OF ARTERIAL HYPERTENSION IN THE CHILDREN

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Backgruond and aim First of all, endothelial dysfunction (ED) have an importante role in modulation of cardiovascular risk in healthy individuals and patients with arterial hypertension. It is already known that the formation of hypertension is associated not only with the state of vascular tone, but also associated with a violation of the relaxation properties of the endothelium.

Methods We selected 80 adolescents aged 15–17 years (16,0 ± 0,11). Clinical, laboratory and instrumental methods for identification of endothelial dysfunction were used.

Results In the children with AH in association with endothelial dysfunction (BMI = 16), metabolic changes and increased electrical activity of LV in ECG examination were revealed. The level of IVRT is elevated and indicates a decrease in the active ventricular relaxation (109 ± 9.41 ms versus 72.18 ±

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