ECHOCARDIOGRAPHY - READ WITH THE EXPERTS

B4. Pulmonary embolism – a case report

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Pulmonary embolism (PE) is the third most common acute cardiovascular disease. The majority of deaths by PE are due to failure to diagnose, rather than failure to treat adequately, so we can say that diagnosis is going clinically unrecognized in most fatal cases. PE may be fatal within 1 hour after onset of symptoms in 10% of cases. There are many predispositional factors, which can be a reason for pulmonary thrombembolism (hereditary, acquired or probable). We present a case report of a patent with acute onset of dyspnea, fatigue, tachycardia and low blood pressure (100/60mmHg) after mechanical injury during football playing. The patient came in the Urgent department of the University Clinic of cardiology in Skopje. On the ECG there was high R wave from V1-3, with negative T waves. The urgent echocardiography was done. Big right atrium and right ventricle was found. Also there was a significant tricuspid regurgitation. Estimated SPAP was high and suggested pulmonary hypertension. Mc Connell signs was also present. The patient was hospitalized in Intensive care unit. D-dimer was also high. The diagnosis of acute pulmonary edema was performed. Conclusion. We can say that urgent echocardiography can be useful in early diagnosis of acute onset of symptoms and early start with adequate therapy.

B5. Rupture Chordae tendinea – a case report

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Urgent echocardiography may help to etiologically differentiate patient with acute onset of symptoms. We present a patient who came

in University clinic of cardiology with onset of chest pain, dyspnea, tachycardia, and fatigue after hard work. On physical examination he had signs of left ventricular failure, irregular heart rhythm and severe systolic murmur of the mitral valve region. The patient knows that he had systolic murmur, but he was completely asymptomatic. On the ECG patient was with atrial fibrillation with fast heart rate. Urgent echocardiography was performed. On echocardiography examination we saw increased dimension of the left atrium and left ventricle, with preserved systolic function and severe mitral regurgitation. There was a mobile structure of the inferior mitral leaflet. The differential diagnosis was Rupture of chorde tendineae in chronic changed mitral apparatus, or vegetation of the mitral valve. The patient was hospitalized in Intensive care unit. After additional examination, we conclude that there was no elements for infective endocarditis, and patient was transferred to the University Clinic of Cardiosurgery for reconstructive surgery.

B6. Pseudoaneurysm after myocardial infarction – a case report

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Left ventricular pseudoaneurysm are rare clinical condition which occur when the myocardial rupture is sealed by pericardium and fibrous tissue. Myocardial infarction is the most common cause of left ventricular aneurysm. We present a patient with clinical signs of left ventricular failure, worsening dyspnea and chest pain. On the ECG he was presented as old myocardial infarction in antero-lateral zone. The patient was hospitalized in Intensive care unit in University Clinic of cardiology. All laboratory test were normal, as well as hs-troponin. Urgent echocardiography was performed. On two-dimensional echocardiography we saw a big apical aneurysm and a small neck at the distal part of inter ventricular septum with a lot of spontaneous contrast in the aneurysm. WE diagnosed apical pseudo aneurysm with initial remodeling of the left ventricle and left ventricular heart failure. The early diagnosed of pseudo aneurysm is very important because of risk of rupture and recommendation of early surgical intervention.

B7. Cardiac tamponade – a case report

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Cardiac tamponade is a result of an accumulation of pericardial fluid, leading to impaired cardiac filling and haemodynamic compromise. We present a patient who came in Emergency room in University Clinic of cardiology. He was a difficult patient with tachypnoea, dyspnea, tachycardia, low blood pressure, fatigue and signs of elevated jugular venous pressure. Urgent echocardiography was performed. We found increase amount of fluid in the pericardium with compromised filling of all cardiac chambers. Very important signs we saw was swinging heart in the pericardial sac, collapse of the right and left atrium, early diastolic collapse of the right ventricular free wall, greater than 25% relative decrease in inspiratory flow across the mitral valve, dilated vena cava inferior with no inspiratory collapse greater than 50%. Echocardiography is the standard non-invasive method to established the diagnosis of pericardial tamponade, and to indicate pericardiocentesis, which is life –treating method.

B8. Acute Coronary Syndrome and Ventricular septal defect as a complication – a case report

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Acute coronary syndrome can be life treating condition. Early diagnosis and discovering complications are very important for the patients and for the useful outcome.We want to present, a young male who was brought to the Universuty Clinic of Cardiology with chest pain and dyspnea. On he ECG there was a sign of myocardial infarction in anterolateral region. The chest pain was presented several days ago. The patient was hospitalized in Intensive Care unit and echocardiography was indicated because of the signs of heart failure. On two-dimensional echocardiography there was a akinesia of the mid and distal part of ventricular septum and big ventricular septal defect, about 10 mm in the distal part of the ventricular septum, with left to right shunt. We made indication for surgical treatment. We can conclude that clinical unstable patients should be estimated by echocardiograpaphy to avoid worsening of the condition.

B9. Hypertrophic obstructive cardiomyopathy – a case report

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Hyrtrophic obstructive cardiomyopathy results in abnormal thickening of the myocardium, most common interventricular septum, that can lead to clinical signs of heart failure, life-treatening arrhythmias, sudden cardiac death. We present a case report of the young female, 26 years old who was brought in University Clinic of cardiology with Syncope during walking. She suffered from low blood pressure, instability during physical activity in the last 6 mounts. She knows that she has a systolic murmur. The ECG was presented with left ventricular hypertrophy. On two-dimensional echocardiography we found hypertrophy of the walls of the left ventricle, the most pronounced on the left ventricular outflow tract, with significant gradient at rest, about 34 mmHg. The patient was admitted for myocardial ablation. We can conclude that the right diagnosis and timely diagnosis can be helpful in preventing complications of the disease.

B10. Left Atrial Myxoma - Case Report

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University Clinic for Cardiology[1], University Clinic for Cardiac Surgery[2], Skopje, N.Macedonia

Introduction: Among primary cardiac tumors, more than three quarters are benign and myxoma is the most common type. Its clinical manifestation is non-specific and when constitutional symptoms, embolization or symptoms due to intracardiac obstruction are present, the diagnosis should be suspected. **Case Report**: A 51-year-old female patient, with no history of cardiovascular disease, was admitted because of positional dispnea and palpitations. The symptoms were intermittent and more frequently present in the last five mounts. Physical examination revealed diastolic murmur. She had previous ECG recordings with supraventricular tachycardia. Echocardiography was performed and showed hyperechogenic, irregularly shaped, large mass in the left atrium attached to the interatrial septum and prolapsing in to the left ventricle during diastole. The patient was diagnosed with left atrial myxoma and transferred to a cardiac surgical center for operative treatment. She underwent surgical removal of the myxoma and the histopathological examination confirmed the diagnosis. After

surgery the echocardiographic study showed normal cardiac function. Her condition was stable and she stayed asymptomatic during the follow-up period. **Conclusion**: Establishing the diagnosis of atrial myxoma in patients can be challenging because of its variable clinical manifestations. Echocardiography is the first line imaging modality providing evaluation and resectability assessment of the tumorous mass. Surgical removal is the only definitive treatment and should be performed promptly because of potential myxoma-related fatal consequences especially the high rate of embolism that occurs in these patients. Considering the risk of recurrence, life-long follow-up is needed.

EKG OF MY LIFE - WORKSHOP (CASE BASED SESSION)

B13. Electrocardiographic features in a 60 year old survivor with tetralogy of Fallot

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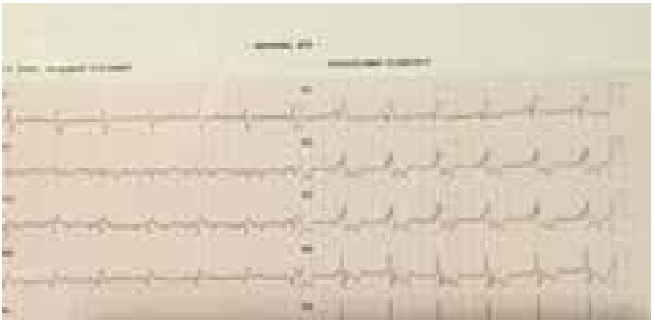
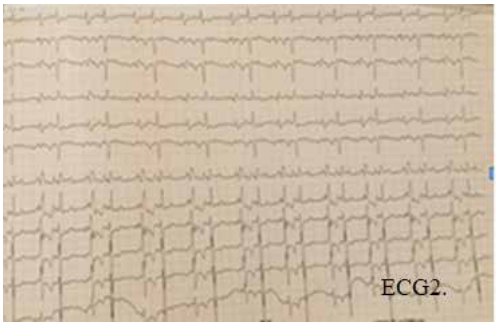
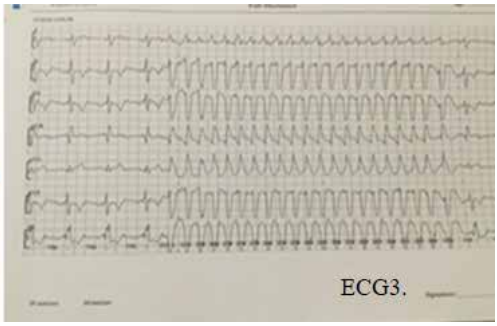
Introduction: The curiosity of the late survival in a patient with Tetralogy Fallot (ToF) , beyond the age of 60 lies in its idiosyncrasy . As a quite common form of cyanotic heart disease there is not yet an electrocardiographically mark.



ECG1

Case review: Diving into the unknown is best to start with the P wave that varies in amplitude (0,6-2mm) mostly negative except in the right sided leads , QRS (130 ms), extreme axis deviation (-120^{0}), rSR` in the lead V1-V4, late transition and slurring of the S wave with complete Right bundle branch block morphology (RBBB). The variety of atrial rhythm disturbances included atrial flutter without AV dissociation, but a varying AV block with (2:1/3:1) ventricular conduction, electrical storm


ECG2.


ECG3.

(VT storm) and a monomorphic ventricular bigeminy (PVCs bear resemblance as a sight of origin in the left anterior bundle). Prior to the VT storm he received a tablet of methyldigoxin (0,25mg) daily for two years and intravenously as bolus during admission in two occasions.

Conclusion: Sinus heart rhythm was not preserved during the time he was treated with a beta blocker agent, a two year period. Also had no records of ventricular tachycardia. In the literature there is a success with amiodarone in a patient without renal failure.

B14. Retrograde invasion of AV node, cause of AV block

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Concealed conduction is electrical stimulation of cardiac tissue, without direct manifestation on ECG, but leading to a change in conduction characteristics. Most frequently, is localized in the atrioventricular (AV) node, during retro- or antegrade propagation of impulse that is unable to pass across the AV node, because of increased refractoriness of the AV node . A 47-year old woman presented with recurrent skipped and rapid sustained heart beats. Her physical examination and echocardiogram were normal. An 24h holter ECG was obtained for evaluation, during which frequent monomorphic premature ventricular contractions were recorded. The presenting ECG shows sinus rhythm, with normal atrio-ventricular (AV) conduction, AV prolongation after PVC and AV block after PVC.

Common example would be an retrogradly conducted interpolated PVC, which does not cause an atrial contraction, because the retrograde conduction is not completely . This AV node stimulation can cause a delay in AV conduction by modifying AV node's conduction characteristics (increased refractoriness). On ECG , this will be manifested as prolongation of PR interval or non-conducted sinus beat. Misinterpretation of these ECG changes can lead to inappropriate treatment.

B15. Flecainide induced wide QRS tachycardia

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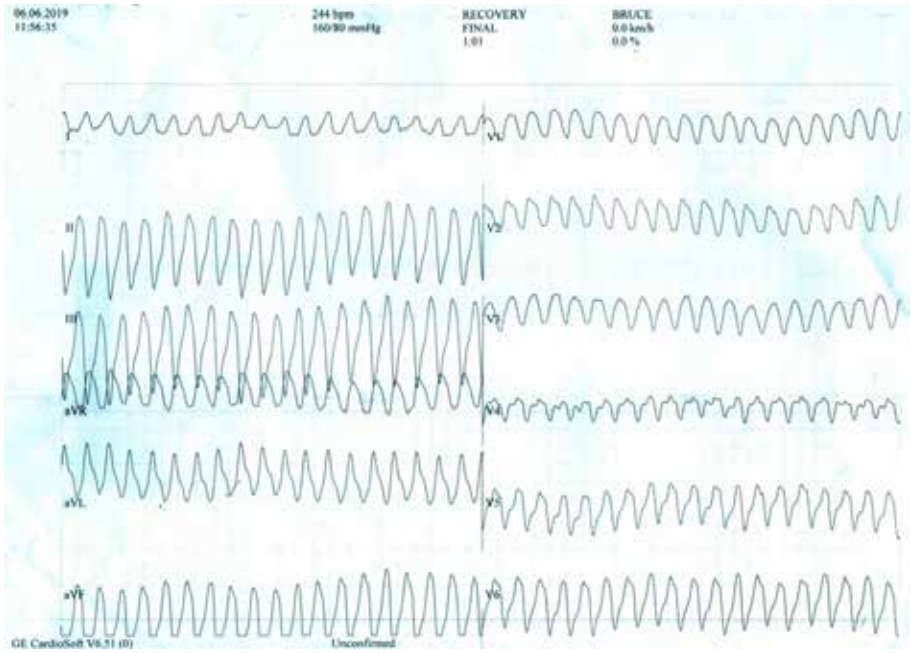
University clinic of cardiology – Skopje, N.Macedonia

Flecainide is class IC antiarrhythmic agent recommended as a first-line antiarrhythmic drug to maintain normal sinus rhythm in patients with atrial fibrillation who have structurally normal hearts or hypertension without left ventricular hypertrophy. It suppresses several types of cardiac tachyarrhythmias including supraventricular tachycardia, arrhythmic long QT syndromes, also the Ca^{2+} -mediated, catecholaminergic polymorphic ventricular tachycardia. Herein, we are presenting a 54 years old patient admitted to the arrithmology department presenting fatigue and breathing difficulties. ECG shows atrial fibrillation with heart rate of 140 bpm. After treatment with flecainide, the patient restored sinus rhythm with heart rate of 75 bpm. After that treadmill stress test was performed and in the recovery phase it went from sinus rhythm to wide QRS atrial flutter with conduction 1:1. She was admitted to the ICU, treated with beta blockers and amiodarone, consequently narrowing the QRS complex. The echocardiography revealed dilated left ventricle with global hypokinesia and ejection fraction of 41%. Coronary angiography was performed presenting

absence of plaque and no luminal stenosis. Despite the favorable effects of flecainide in suppressing arrhythmias, applying the drug to structurally unhealthy heart, most notably following myocardial infarction exert it's pro-arrhythmic effects.



B17. Atrial flutter mimicking ventricular tachycardia

M. Mancheva, D. Matkova, L. Poposka

University Clinic of Cardiology, Skopje, R. Macedonia

Case report: A 54-year-old man was hospitalized because of palpitations and dizziness. He reported that his first episode of arrhythmia was two years ago, pharmacologically converted to sinus rhythm. In the last three months he had two episodes of paroxysmal atrial flutter (AFL), treated with IC class antyarrhythmic drug (AAD) – propafenone 150mg bid. He has medical history of hyperlipidemia, he is non-smoker and didn't have any positive family predisposition for CVD. ECG on admission (Figure 1) presented with wide QRS tachycardia, RBBB morphology. The patient has normal potassium level, echocardiography examination showed no significant underlying heart disease, only mild enlargement of left atrium (42mm) and mild mitral and tricuspid insufficiency, with normal left ventricular function.

Figure 1: Wide QRS tachycardia, RBBB morphology

Atrial flutter with 1:1 AV conduction and ventricular tachycardia are both hemodinamically compromitating conditions. Conversion of atrial fibrillation to atrial flutter with 1:1 AV conduction and wide QRS is well recognized proarrhythmic effect of IC class AAD, even in patients without structural heart disease. Out-of-hospital self-administration of IC class AAD according to the 'pill-in the-pocket' approach can be used following adequate patient education and a previous in-hospital testing, demonstrating safe conversion of atrial fibrillation to sinus rhythm, without any proarrhythmia. Adding a beta-blocker is recommended to avoid conversion of atrial fibrillation into atrial flutter with 1:1 conduction.

B18. Atrial tachycardia and giant P wave

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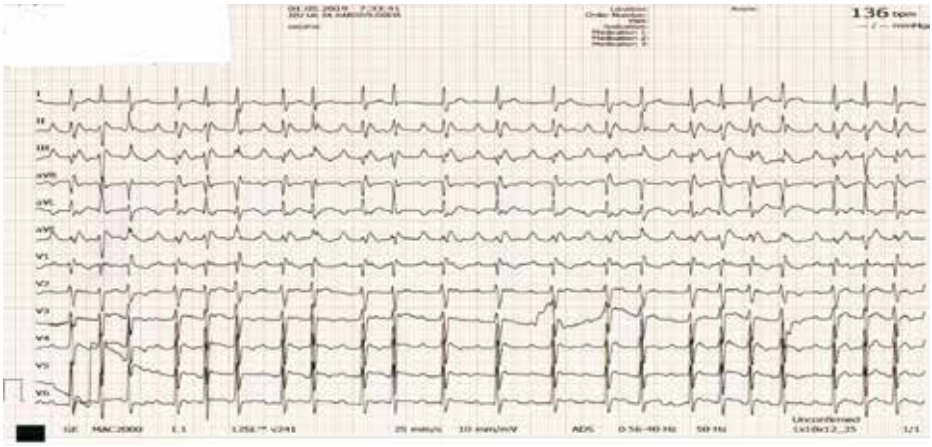
Giant P wave is associated with congenital heart diseases with right to left shunt like tricuspid atresia, Ebstein anomaly and combined tricuspid and pulmonic stenosis, indicate a dilated right atrium and tend to be persistent. A 23 years old male was admitted to our hospital with palpitations, vertigo and fatigue. The electrocardiogram showed very fast heard rate of 200 bpm, an extremely tall P wave; T waves were inverted on the precordial leads. The echocardiography, and subsequent investigations, were consistent with left ventricular cardiomyopathy and border dimension of right ventricle with mild mitral regurgitation, and right atrial enlargement. A 24 hours

Holter monitoring was performed, and atrial tachycardia was noted, as well as paroxysmal AV block (Mobitz II). CT angiography of the chest was performed in which diffusely spared pneuocellas were found. In this case demonstrated a significant presence of supraventricular arrhythmias in patient with pulmonary diseases which were detected on random finding.



B19. Effort induced complete AV block – Case Report

V. Kralevska, L. Poposka

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Introduction: Cardiac syncope can be a manifestation of atrioventricular conduction system disease. When symptoms are due to paroxysmal atrioventricular block, intensive diagnostic approach is necessary to establish the diagnosis. **Case Report**: A 59-year-old male patient was admitted to hospital with the compliant of syncope during exertion. Last year he had three episodes of syncope which lasted approximately 15 seconds. His physical and neurological examinations, electroencephalography and brain imaging were without significant findings. Blood tests including complete blood count and electrolytes were normal. Resting ECG on admission revealed sinus rhythm with right bundle branch block and left posterior fascicular block at a rate of 75 bpm. 24-hour Holter monitoring and echocardiography revealed no cause for the syncope. Coronary angiography showed normal coronary arteries. During the hospital stay the patient had a syncopal relapse and paroxysmal third-degree AV block with ventricular escape rhythm was recorded on ECG (Figure 1). The patient received implantation of a permanent dual chamber pacemaker and had no further symptoms during the follow–up period.

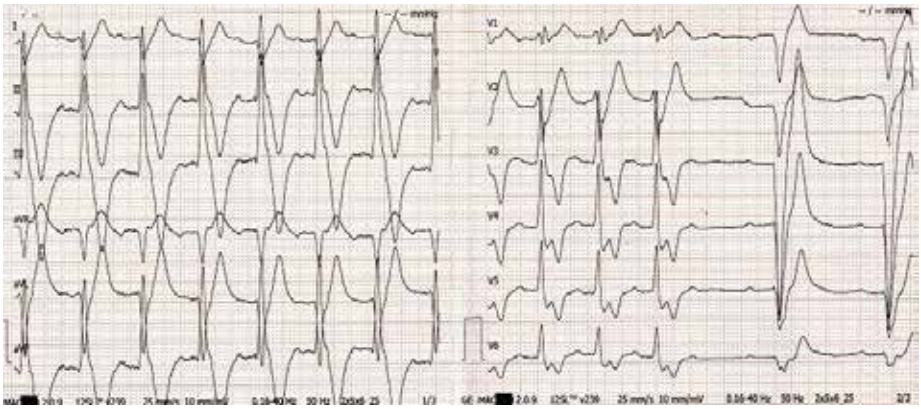

Figure 1. Paroxysmal third-degree AV block with ventricular escape rhythm

Conclusion: Paroxysmal AV block should be suspected in patients with abnormal standard ECG and unexplained syncope. Excluding extrinsic etiology of the AV block and other structural cardiopulmonary diseases is needed. As a manifestation of an intrinsic disease of the AV conduction system it points to progression of the block toward permanent forms. The patient had paroxysmal AV block documented on ECG at the time of syncope and correlation between patient's symptoms and rhythm abnormalities was established. Cardiac pacing was indicated and performed. Studies showed a significant reduction in syncopal recurrences in patients with intrinsic AV block implanted with a pacemaker.

MULTI MODALITY IMAGING

B34. MPI SPECT CT-added value of hybrid systems in the diagnostic accuracy of MPI SPECT

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Objectives. This is a case series report that aims to evaluate the diagnostic accuracy of visual estimation of coronary artery calcium (CAC) from CT attenuation correction (CTAC) scans performed for hybrid SPECT/CT myocardial perfusion imaging (MPI).

Methods. In a case series of three asymptomatic high risk patients (obese, hypertensive, age >65, with type 2 DM, one female and two males), MPI SPECT with CTAC was performed as one day rest/stress gated MPI SPECT CT protocol with Tc-99m MIBI, and dipyridamole as vasodilator stressor in standard dose of 0,56 mg/kg/BW as a 4 min infusion. A low-dose, non-ECG-gated CT scan was performed at the end of the study. All three patients underwent coronary angiograph **Results.** All three patients had normal MPI SPECT studies in terms of myocardial perfusion and LV function. In one male patient CTAC solve the problem of diaphragmatic attenuation. We used VECAC-Visual Estimated Calcium Score, as suggested byEinstein, and all three patients were considered to have high calcium score index. All three patients underwent threw coronary angiography, and in none of them significant flow limiting stenosis was found. **Conclusion.** CAC score can be visually assessed from low-dose CTAC scans, and accompanied with normal myocardial perfusion scan in asymptomatic patients can relatively safely exclude significant coronary artery stenosis. CTAC scans should be routinely assessed for VECAC.

INFLAMATORY MYOCARDIAL DISEASES AND CARDIOMYOPATHIES

S9. Infectious endocarditis – a Case report

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Introduction. Infectious endocarditis (IE) is defined as an endovascular infection caused by various types of microorganisms, most commonly bacteria. The infection can be localized primarily to the endocardium of cardiac valves. Today, it is a disease that occurs in the population of advanced age, most often after some (invasive) diagnostic-intervention procedure, in patients who have not previously had heart valve disease or have already implanted artificial valve. Diagnosis is realistically simple in patients with classic clinical presentation: bacteraemia or fungiemia, with valvular disease, peripheral emboli, and immune vascular changes. However, in the acute course, peripheral signs are rare or absent, whereas in addicts and abusers, IE is a consequence of S. aureus infection with a clinical picture of right heart disease. **Case report.** An interesting case report of endocarditis of an interventricular junction resulting from Bental leakage due to Stanford A dissection of the aorta. Various long-term antimicrobial therapy is often used in therapy, often in combination with surgery**. Conclusion**. Adherence to therapeutic guidelines and indications for surgery can significantly improve the survival and quality of life of these patients.

CONGENITAL HEART DISEASES

S24. Conotruncal Cardiac Malformation

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Introduction. The conotruncal cardiac malformations are a rare group of malformations which involve the outflow tract of the heart. They result from disturbance of outflow tract of the embryonic heart, disturbance of development of branchial arch, arteries or both. Conotruncal malformations include: Tetralogy of Fallot, Pulmonary atresia with ventricular septal defect, Double outlet right ventricle, Common arterial trunk, Transposition of the great arteries and Double inlet ventricle (left or right). More frequent, these malformations are a part of the De George syndrome, Velocardiofacial syndrome, or other syndromes caused by the deletion of 22q 11 region of the humans chromosomes. **Objective**. Diagnosis and treatment of conotruncal malformations in childhood and youth. **Materials**. We describe the 94 pts with different conotruncal malformations, diagnosed at University children's hospital in Skopje, for the period 2013-2018. **Methods**. For diagnosis we used: clinical signs and symptoms, color Doppler echocardiography, ECG, Chest X ray and diagnostic cardiac catheterization and genetics analyzes in certain children. **Results and conclusion**. 94 children 53 male and 41 female aged from 1 days to 6 months (mean 2,2 months +/- 1,8) were evaluated. 41/94 of them were with Tetralogy of Falot, 18/94 Double inlet ventricle (left or right), 20/94 Transposition of great arteries,5/98 Trunks arteriosus persistence, 5/94 Double outlet right ventricle and 5/94 with pulmonary atresia. Failure to thrive and severe cyanosis were dominant signs and they were found in 90/94 pts. Color Doppler echocardiography, ECG and Chest X ray were performed in all pts, cardiac catheterization in 30 of 84. All the pts undergoing cardiac surgery once or more times with different kind of operation depending of the type of defects(Jaten operation, Glen or Fontan, radical correction or paliation). Conotruncal cardiac malformation is a group of very different and severe congenital heart diseases. There are many technics and type of cardiosurgery treatmens witch allowed to patients with conotruncal malformations to survive and have a quality of life.

S27. Multi modality imaging of Cor triatriatum sinister - Case report

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[2] School of Medicine Osijek, University J. J. Strossmayer Osijek, Croatia

Introduction: Cor triatriatum sinister (CTS) is a very rare congenital cardiac malformation in which the left atrium (LA) is divided into two chambers by a fold of tissue, a membrane, or a fibromuscular band. The anomaly is usually diagnosed in childhood, but in adult age is less common. Clinical symptoms can mimic mitral stenosis.

Casereport: We report a case of a 54-year-old woman referred to our hospital for transoesophageal echocardiography (TEE). She had in history of dyspnea, headache, dizziness and effort intolerance for five years. Physical examination and laboratory values were unremarkable. Two-dimensional and three-dimensional transoesophageal echocardiography revealed fibromembranous structure in the dilated LA (**Figure 1** and **Figure 2**). The membrane attached laterally to the junction of the left upper pulmonic vein and left atrial appendage, and medially to the interatrial septum. The membrane divided LA into two chambers (proximal chamber and distal chamber). Proximal chamber was receiving the pulmonary veins, and distal chamber contained left atrial appendage and mitral valve orifice. We found few fenestration connecting the two chambers. Multislice computed tomography (MSCT) confirmed diagnosis of CTS (**Figure 3**).Coronary angiography revealed normal coronary arteries. The patient was referred to surgery following a TEE and MSCT diagnosis of CTS. The atrial membrane was excised around its periphery. Recovery from the surgery was uneventful and she was asymptomatic on further hospital stay and follow-up. Conclusion: The diagnosis of cor triatriatum sinister is paramount because of possibility of surgical repair with excellent long-term prognosis. 3D TEE is noninvasive method for comprehensive imaging and correct diagnosis of this rare congenital cardiac malformation. Surgical repair is an easy and definitive treatment choice of CTS should be considered in patients with left heart chamber obstruction symptoms.

Figure 1.Two-dimensional transthoracic echocardiogram parasternal long-axis view showing a fibromuscular membrane dividing the dilated left atrium into two chambers.

Figure 2. Transoesophageal echocardiogram demonstrating a fibromuscular membrane in the left atrium.

Figure3. Multislice computed tomography showing a membrane dividing the left atrium into two chambers.

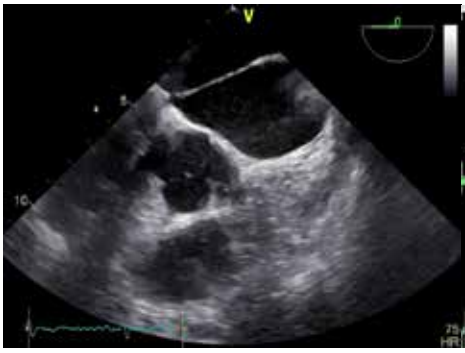

Fig. 1.

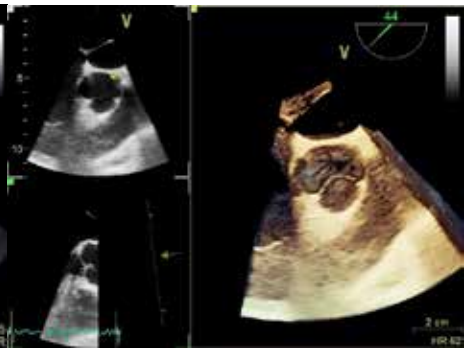

Fig.2.

Fig. 3.

IMAGING IN SPECIFIC SITUATION

S32. O. Ebstein's anomaly and left pulmonary artery stenosis complicated by pulmonary embolisam - A case report

S. Bongard, Z. Hristovski, O. Busljetic, M. Jurukovska, S. Tadger

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The common feature in Ebstein's anomaly is atypical displacement of the septal tricuspid leaflet accompanied by leaflet dysplasia. Most common associated structural defects include: PFO or ASD, VSD, aortic coarctation, and PDA. To illustrate problems associated with the Ebstein's anomaly, we present the case of 26-year old patient admitted with dyspnea, exercise intolerance, epistaxis, and tachycardia, all declared about 4 months prior to admission. A transthoracic echo on admission showed image typical of Ebstein's anomaly with the septal leaflet of tricuspid vale displaced into the right ventricular cavity, and attached to a hypertrophied myocardium. A severe tricuspid eccentric regurgitation was also present. The CT angiography showed stenosis of the proximal left pulmonary artery with a post stenotic dilatation, and complicated with thrombosis. In surgery, the septal leaflet of the tricuspid valve was dysplastic and non-functional, with abnormally high insertion of both, septal and posterior leaflets. The patient underwent pulmonary thromboemboctomy, RVOT myotomy, and tricuspid valve replacement with mechanical valve ATS 31 mm. Histological, the excised leaflets contained fibrinoid necrosis. The postoperative course was uneventful and the patient was discharged on the 7^{th} postoperative day. It can be concluded that the patient underwent an acute event of pulmonary embolism with a background of congenital pulmonary stenosis and Ebstain's anomaly. The case is significant for unusual association of the two rare congenital entities.

CORONARY INTERVENTIONS II

S39. Radiation Safety and Radiation Optimization in the Cathlab

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Occupational exposure to ionizing radiation in the cathlab is an important healthcare concern today, primarily due to the increased risk of development of malignant diseases. Ionizing radiation has the potential to cause biological harm either by directly damaging molecules like DNA or through the secondary effects of generating free radicals by ionization. Effects of ionizing radiation can be divided into deterministic and stochastic. Deterministic effects have a threshold level below which they will not occur and above which the severity of the effect increases with increasing dose. Stochastic effects do not have a threshold level and may occur at any radiation dose; however, their likelihood, but not severity, increases with increasing absorbed dose. Interventional cardiologists have the highest radiation exposure of any medical professional. Staff radiation exposure largely depends on several factors like hardware and software equipment and characteristics, patient weight (obesity) and operator`s knowledge and habits. It usually comes from the primary X-ray beam as well as scattered (secondary) radiation. The central principles of radiation protection include justification, optimization and limitation. Radiation dose reduction techniques for all modalities include patient tailored imaging, good operator technique and hardware and software improvements. Personal protective equipment is important to minimize occupational radiation exposure.

CARDIOSUREGY IN HEART FAILURE

S50. Postoperative management of patients with mechanical circulatory support

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Clinical Hospital Zan Mitrev Skopje, Macedonia, 1KBC Beograd, Serbia, 2KBC Ljubljana. Slovenia

Introduction: Mechanical circulatory support (MCS) very often is a bridge to transplantation or destination therapy in treatment of patients with refractory heart failure (HFrEF). MCS can be used as a right or left or biventricular support in dependency of type and ethiology of the heart failure. Postoperative management of this patient is specific and it is essential for good clinical outcome. **Material and methods**: Since 12/2018 we have implanted MCS in 5 patients. According to the type of MCS we implanted 1 LVAD, 2 BVAD, 1 LVAD and replacement of the aortic valve. And 1 total artificial heart (TAH) Syncardia. For VAD patients we used Heart Mate 3 Abbot devices. 4 patients were mail, 1 female, average age 43.6. LVAD patients had been treated according to SwanGanz haemodynamic parameters, were target was CI>2,5, SVR < 1000, TPR< 300, Wedge near 14, CVP 14 and MAP 60-80 mmHg. BVAD patients had been managed according to PICCO parameters (CI> 2,5, SVR< 1000, ESLW < 350, CVP near 14). Patient with TAH was treated according to measured values of MAP and CO from the Syncardia machine. **Results**: Average ventilation time was 60h, early mobilization 3rd postoperative day, chest tube extirpated 5th day. All patients got physical training for heart conditioning Discharging time after 45 days (15 days postoperative treatment and 30 days rehabilitation). Follow up period – longest 7 months. **Conclusion:** Usage of MCS is a safe procedure which supports the patient's cardiovascular system, and helps for better recovery and bridge to transplantation. The essential in the success of this procedure is good preoperative evaluation and estimation of patient's cardiac reserve.

ABSTRACT SESSION

K1. CARDIAC AMYLOIDOSIS-the role of CMR (A case report)

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Background. CARDIAC AMYLOIDOSIS belongs to the group of infiltrative cardiomyopathies [extracellular irreversible accumulation and deposition of amyloid], which compress the cardiomyocytes, resulting, on long term with myocardial hypertrophy, HFpEF, conduction and/or rhythm disorders. Cardiac involvement can occur as part of a systemic disease or as a localized phenomenon. **Aim of study:** this is a case report, aiming to demonstrate possibilities of cardiac MRI in diagnosis, and moreover in prognosis of patients with amyloidosis who develops cardiac involvement. **Method:** clinical, laboratory, genetic and scintigraphy workout of the patient aiming to confirm TTRamyloidosis, our aim was to detect cardiac involvement. Echocardiography was the initial imaging modality, followed by cardiac MRI. CMR protocol: MRT 1,5 T, Gadovist contrast (Gadolinium) 0,15mmol/kg; body array, ECG-triggered, axial Haste, coronal, parasagittal and axial Cine sequences, Late enhancement Trufisp high resolution. **Result:** Clinical case was for mail patient at the age of 68 years, with diagnosed TTR-Amyloidosis (99mTc-DPD scan demonstrating markedly increased myocardial accumulation (Peruginine grade 3). Medical history: heart failure symptoms NYHA class II, however, no anginal chest pain, no edemas, nor syncope. Co-morbidities: Hypothyroidism, Hyperlipidemia, BPH; family history: without known history for cardiac diseases; pharmacology history: Euthyrox 50 mcg 1-0-0; Finasteride 5mg 1-0-0; Catechin Loges Grunteekapsein 2-0-2.On physical examination**:** BH 168cm, BW 63 kg, BSA 1,72m^2 ; BP 135/80mmHg, HR 50/min, no abnormal findings on the heart and lung examination, nor signs of congestion. ECG: sinus bradycardia (HR 50/min), A-V block Ist degree (PQ interval 230 msec), left axis deviation, LAH, intraventricular conduction delay

(QRS 130 msec), QS pattern V_1-V_3.LAB workout: abnormal findings: hyperlipidemia of the type of hypercholesterolemia, total Cholesterol 6,0 mmol/L, and LDL-C 3,9mmol/L); slightly elevated TnT – 26 (0-14) ng/L, and elevated NTproBNP – 503,5 (0-125) pg/mL; no paraproteins in the serum and urine; elevated Beta 2-macroglobulin – 2,69 (0,8-2,2) mg/L *(a marker of multiple myeloma).* Heart ultrasound: severe concentric LV hypertrophy, diastolic dysfunction, biatrial enlargement, accompanied with mild mitral and tricuspid regurgitation.Data needed for CMRI: eGFR=87.0 mL/min/1.73 m²; HTC = 43,9% CMRI result: LV with normal size andhigh-grade concentric hypertrophy, normal systolic function. No, regional wall motion abnormalities. RV moderately enlarged with normal function. Higher-grade enlargement of the LA, moderately enlarged RA. Late contrast images demonstrates a subendocardial late enhancement ring, typical for cardiac amyloidosis (positive late enhancement).T1 seed myocardium washout contrasting agent 1162 ms, extracellular volume (ECV) 53.6%.MR topographically mild mitral regurgitation. Summary: Total cardiac amyloidosis with an ECV of 53.6%. **Conclusion:** This case report is an example of the possibility of cardiac MRI to take place not only in the diagnosis of cardiac involvement, but moreover, by follow-up studies in the prognosis of the disease.

K2. What is the cut-off for Nt-proBNP in valvular aortic stenosis?

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Aim: Assess the cut-off value for Nt-proBNP in our representative group of severe valvular aortic stenosis (AS) pts for our country and it's predictive value for revealing symptoms comparing with the most important echocardiographic parameters. **Material:** We analyzed 187 AS pts with normal LV function (EF>50%). Asymptomatic (ASAS)pts:61(33%) monitored 02-36 months and symptomatic (SAS)pts:126(67%) monitored 03-88 months. When referred to aortic valve. replasman, 142 severe AS pts performed coronary angiography and we found: 41 pts with CAD and 101 pts without significant CAD. **Methods:** We used Nt-proBNP (from serum) and echocardiography for accessing the severity of stenosis. **Results:** Nt-proBNP(pg/ml) analysis showed: Optimal **cut-off value** of Nt-proBNP to reveal the existence of symptoms was 460 pg/ml (sensitivity 85%, specificity 72%, positive predictive value 86%, negative predictive value 70%). Greatest predictive power for revealing of symptoms had Nt-proBNP 0.806

(95% CI 0.731-0.881) p=0.000, compared to aortic valve. area 0.335 (95% CI 0.251-0.418) p=0.000 and maximal transvalvular velocity 0.687 (95% CI 0.606-0.767) p=0.000. Average survival time was shorter in the group of severe AS pts with Nt-proBNP above 460 pg/ml (p<0.004) (n=187, whole group).The group with Nt-proBNP above cut-off value of 460 pg/ml, with HR 1.828 (95% CI 1.079-3.099) had statistically significant greater risk for event (n=101,AS pts without CAD). **Conclusion:** Nt-proBNP has incremental value as a predictor of future events (worsening of the situation/death) in severe AS. Average survival time was shorter and the risk for event was greater in the group who had higher values of this parameter. Our cut-off value is comparable to the values of the other authors, so we have to use this diagnostic tool in everyday practice.

K3. Surgical Aortic Valve Replacement at the Zan Mitrev Clinic: A ten-year single-centre retrospective study

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Objectives: Aortic stenosis (AS) is the most prevalent heart valve disorder. Surgical aortic valve replacement (SAVR) remains the gold standard treatment for AS in low-to-middle-income countries such as the Republic of North Macedonia. The noninvasive Transcatheter aortic valve replacement (TAVR) for AS is poorly established despite widespread acceptance of the procedure in western countries. Mortality is a frequently used unambiguous quality indicator in cardiac surgery; to this end, we analysed in-hospital mortality rates following SAVR. **Methods:** a retrospective analysis of 899 consecutive patients, 31.03 % ♀, median age = 62 [range, 15 – 82 years], who underwent SAVR during 2003 and 2013 at Zan Mitrev Clinic. The primary endpoint was in-hospital mortality; we compared the observed- vs expected mortality based on the ACEF II score (Ranucci et al., 2017). Outcome after isolated- and combined SAVR + CABG were scrutinised against benchmark mortality rates extracted from the Society for Thoracic Surgery (STS) Adult Cardiac Surgery Database (ACSD) (D'Agostino et al., 2016); comparisons were made using a two-tailed binomial test. Results: The predicted mean ACEF II operative mortality of 3.78% was similar to the observed in-hospital mortality of 3.56% [CI95%, 2.533 to 4.982 %], p = 0.793. High-risk patients - defined as ACEF II score > 4.48%, specificity 0.86 [CI95% 0.84 to 0.88] - accounted for 14.4% (129/899) of the cohort; the observed mortality in this subgroup was

9.3% [CI95%, 5.402 to 15.56%] comparable to the expected rate of 12.20%, (p > 0.418). The observed mortality for isolated (1.63%) and SAVR + CABG (3.70%) were on par with the STS benchmarks of 1.90% (p = 0.859) and 3.20% (p = 0.695), respectively.

Conclusions: SAVR at Zan Mitrev Clinic is associated with excellent early survival, also in high-risk patients.The early clinical outcome is comparable to the benchmarks reported by theSTS.

K4. Hybrid SPECT/CT imaging in cardiovascular prevention: assessment of coronary calcium score and hemodynamically significant ischemia for risk restratification and improved treatment approach

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Introduction: In patients without coronary calcium score (CCS)-0 Agatston units (AU) significant coronary artery disease (CAD) can be excluded with a high negative predictive value by CCS alone. An additional normal Single photon emission computed tomography myocardial perfusion imaging (SPECT-MPI) even in patients with high CCS (>400AU) can reduce the need of invasive diagnostic procedure and intensify medical treatment, adherence and risk factors control. From other side high CCS and the presence of myocardial ischemia can restratify patient risk, intensify management approach and select the patients for invasive CAD treatment. **Case report**:55 years old patient with hypertension and obesity presented at the outpatient unit at our cardiology clinic with atypical chest pain. He had moderate CV risk (SCORE 4%) without previously known CAD and no other risk factors. Patient laboratory findings were within referent values. His coronary stress test was with borderline ECG changes. He achieved 10 Mets with good BP stress response. SPECT/CThybrid imaging with one day rest and pharmacological stress with Dypiridamole and Tc-99M Sestamibiwas done aimed to detect the presence of inducible myocardial ischemia and evaluate the presence of coronary calcium. There were no ECG changes during the Dipyridamole pharmacologic stress. Patient complained on chest pain during the stress phase. Total CCS values was 289 AU, located on left anterior descendent coronary artery (LAD).Calculated patient arterial age after CCS using MESA model was 80 years (95% CI 77-85). Myocardial SPECT imaging showed the presence of severe inducible ischemia in 5 segments (anterior, apical and anteroseptal- vascular region LAD), with SDS 11.

Global rest left ventricular function was normal with EF 70% and fall of EF during stress to 62%. We found hypokinesia in the apex and septal wall. Coronary angiography with LAD stenting (DES Resolute) was performed. Patient was clinically stable and discharged with high dose statin (Rosuvastatin 40mg od), AKE inhibitor (Perindopril 4mg od), Aspirin 100mg od, Clopidogrel 75mg od, Lercanidipine 10mg od. He was advice for life style changes and tight risk factor control. Patient initial assessment of moderate risk was changed to high risk after the SPECT/CT imaging with presence of high CCS and severe myocardial ischemia. **Conclusion:** Combining the results of CCS with the findings of SPECT myocardial imaging may enhance the prognostic value of both, resulting in benefits for patient screening, as well asearly diagnosis and treatment of suspected CAD. Arterial age provides a convenient transformation of coronary artery calcium (CAC) from Agatston units to age units, to a scale more easily appreciated by both patients and treating physicians.

K6. Left ventricular systolic function during dobutamine/dipyridamole stress echocardiography

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Background.We aimed to analyze the left ventricular contractile reserve induced with pharmacological stress in patients with or without CAD. Methods.We analyzed 105 patients in our stress echocardiography lab with ischemic-type chest pain or other symptoms suggestive of myocardial ischemia. All patients underwent resting and stress echocardiography employing the standard dobutamine and dipyridamole stress protocol. Systolic function was defined as the ratio of left ventricular end-diastolic volume or end-systolic volume measured at peak stress. We analyzed the systolic function before and after loading generally via left ventricle ejection fraction (LVEF), wall motion score change, cardiac index and minute cardiac volume as well as systolic motion of mitral annulus. Coronary angiography after loading was performed in 61 (58.1%) patients, out of which 20 (32.8%) patients with newly diagnosed or aggravated coronary artery disease (CAD) were found and in 41 (67.2%) were absent. Results. Comparison of the parameters reflecting pre-and post-load, systolic function generally showed a statistically insignificant increase in LVEF per load, almost no change in wall motion abnormality (WMA) score, but also a statistically significant increase in indexed impact and

minute volume as well as systolic motion of mitral annulus. In order to determine whether these changes are different depending on the pharmacological stressor applied, we compared and determined that the type of pharmacological stressor did not affect the significance of the differences obtained, but also performed an analysis of the obtained delta values as compared to basal and those obtained at maximum load. The comparison showed that by administering dobutamine significantly changes or increases (improves) the systolic motion of mitral annulus, as well as statistically significantly (increases) the WMA score. No differences in the delta values of the other systolic parameters between the two stressors were found. When comparing systolic parameters before and after loading depending on whether patients had angiographically established (Table) presence of newly discovered or worsening pre-existing CAD we found that patients with CAD showed a slight increase in LVED, a slight increase in indexed impact volume, a significant increase in indexed minute volume likely due to a significant increase in HR, a significant increase in the systolic movement of the mitral ring, and a significant borderline WMA In patients without CAD, almost identical changes occurred, with both volumes increasing, but with a slight improvement in WMA.

Table: Echocardiographic evaluation of changes in parameters reflecting LV systolic function in patients divided with or without of angiographically defined CAD.

CAD		Parameter	Before load	MAX	p
With CAD	n=20	**LVEF(%)**	59,0 ± 8,2	60,0 ± 8,2	0,380
	n=18	**SV/BSA**	41,3 ± 13,4	48,7 ± 11,3	0,193
	n=18	**CI (L/min/m²)**	3,4 ± 1,6	5,0 ± 1,5	0,0001
	n=20	**MAPSVa (cm/s)**	7,6 ± 1,3	9,7 ± 2,6	0,001
	n=20	**WMA score**	1,12±0,10	1,21±0,20	0,076
withoutCAD	n=41	**LVEF (%)**	61,0 ± 8,7	61,6 ± 10,0	0,768
	n=38	**SV/BSA (ml/ m²)**	42,7 ± 10,5	49,4 ± 11,9	0,0001
	n=38	**CI (L/min/m²)**	3,1 ± 0,9	4,6 ± 1,6	0,0001
	n=41	**MAPSVa(cm/s)**	7,6 ± 1,3	8,3 ± 1,6	0,001
	n=41	**WMA score**	1,10±0,14	1,08±0,11	0,364

BSA= body surface area;LVEF= left ventricular ejection fraction, SV=stroke volume. CI=cardiac index; MAPSVa (mitral annular plane of systolic velocity;WMA=wall motion abnormality.

Conclusion. Comparison of the parameters reflecting pre- and post-load systolic function generally showed a statistically insignificant increase in the LV ejection fraction per load, a statistically significant increase in the cardiac index and minute volume, as well as the systolic motion of mitral annulus. selection of patients with preserved LV systolic function, relatively good load capacity and less pronounced CAD.

K8. National prevalence of heart failure in type 2 diabetes patients derived from the National eHealth System and their access to treatment with SGLT2 inhibitors or GLP-1 Receptor Agonists

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Background and aims: Our country is estimated to have the second highest diabetes age-adjusted (20-79 years) comparative prevalence in Europe (10.1%), and is categorized as a very high risk country for cardiovascular disease (CVD) mortality (CVD mortality >450/100,000 for men, and >350/100,000 for women). **Aim** of the study was, for the first time, to evaluate the national prevalence of heart failure in type 2 diabetes patients, based on the data derived from National eHealth System (NeHS), and their access to reimbursed treatment with SGLT2 inhibitors (SGLT2i) or GLP-1Receptor Agonists (GLP-1RA), as recommended for those patients after initial treatment with metformin. **Materials and methods:** National eHealth System was searched for all type 2 diabetes patients(ICD-10 code E11) with heart failure (ICD-10 codes I42 (I42.0-I42.9), I43 and I50 (I50.0, I50.1, I50.9)) in their Electronic Healthcare Records (EHR), with a cut-off date of 01-Apr-2017. Number of total patients with access to reimbursed treatment with GLP-1RA or SGLT2i, at the given cut-off date, was 50. **Results:** Total of 9,849 patients with type 2 diabetes were identified to be diagnosed with heart failure from their EHRs in NeHS. Since the estimated number of type 2 diabetes patients was 82,268 [1,3], national prevalence of heart failure in type 2 diabetes patients was 12.0%. Majority of type 2 diabetes patients with heart failure were at the age of 60 years or above (n=9,107; 92.5% of all type 2 diabetes patients with heart failure).Only up to 0.5% of all type 2 diabetes patients with heart failure had access to reimbursed treatment with GLP-1RA or SGLT2i. **Conclusions:** These are the first results of national prevalence of heart failure in type 2 diabetes patients (12.0%) derived from the NeHS, with majority of patients identified at the age of 60 years or above. Despite the recent increase in number of patients having reimbursed treatment with SGLTi or GLP-1RA (from 50 to 300 patients), their access to those medications has been very limited.

K9. LV thrombus treatment by rivaroxaban - single center experience

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Aims. Single center rertrospective database search of cases with LV thrombus treated by NOAC. **Methods.** We did a retrospective electronic database search in our center. 3 cases of LV thrombus treated by NOAC were identified in the period 01.2013-05.2019. EKGs, echocardiograms, clinical records were all reviewed. **Resuts.** 1st patient was 58-year old female with echocardiographic features of LVNC and apical thrombus. The patient declined VKA due to personal reasons. Short episodes of atrial fibrillation were identified on telemetry. After obtaining informed consent, patient was commenced on rivaroxaban 20mg, as this was and still is an off-label indication. On follow up at 3, 6, 12 months she was clinically stable and her LV thrombus was fully resolved and there were no signs of systemic embolism. LVO with Sonovue was performed at 1 year, confirming multiple trabeculations and full thrombus resolution. The echocardiography of her son was reviewed and was showing same typical features of LVNC, so this was now considered a case of familial LVNC and we offered echocardiography screening to other family members. Her 30-year old daughter was screened, but showed no features of LVNC. Unfortunately, her son had poor INR control, unresolved LV thrombus and expired due to portal vein thrombosis developing at time of subtherapeutic INRs. It can be speculated that LVNC with HF cause a prothrombotic state, which together with low INRs contributed to his condition. 2nd patient was 83-year old male with past history of anterior STEMI 5 years prior to admission. He was on VKA for permanent atrial fibrillation, but with poor INR control and one previous brain embolism whilst on VKA. He presented with bilateral popliteal embolism, critical limb ischaemia and fresh LV thrombus in an apical LV aneurysm. The patient underwent arterial thrombectomy and was discharged on rivaroxaban 20mg. The LV thrombus almost fully resolved at 1 month. There were no embolic episodes in a 2-year follow up and full thrombus resolution was evident from follow up TTEs. 3rd case was a 56-year old male with CAD, history of inferior and lateral MIs, paroxysmal atrial fibrillation (on no oral anticoagulation prior to admission) and non-small cell lung cancer. A well-defined, round, pedunculated structure was identified at the LV apex on TTE and appeared perfused on LVO with Sonovue. A trial of therapeutic dose of LMWH resulted partial resolution of the mass, suggesting it is a thrombus and not metastasis. As the patient was undergoing

chemotherapy, in order to avoid the multiple drug-to-drug interactions with VKA and in light of our previous positive experience, the patient was offered rivaroxaban 20mg, which he accepted with informed consent, with full thrombus resolution at follow up TTEs at 3, 6 and 12 months and no evidence of systemic embolism. All patients above had stable CrCl > 50ml/min. **Conclusions.** NOACs have not been prospectively studied in LV thrombosis and remain off-label and not recommended by most guidelines in this setting. However, there have been multiple case reports and some case series published, describing patients with LV thrombus treated with NOACs (mainly rivaroxaban), most of them after anterior myocardial infarction, showing thrombus resolution at follow up. In our series, 3 patients with apical LV thrombus have been successfully treated rivaroxaban. All 3 patients had concomitant atrial fibrillation, which was used as indication for reimbursement purposes. One of the patients refused VKA, one had very poor INR control and in the 3rd case significant drug interactions were expected with his cancer therapy. In our experience, rivaroxaban is a valuable oral anticoagulation alternative to VKA in LV thrombus setting.

INTERESTING CASES FROM CARDIOVASCULAR PATOLOGY - CASE BASED SESSION

K10. Case of patient with heart failure with reduced efection fraction, dilated cardiomyopathy treated with SACUBITRIL/VALSARTAN

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Heart failure (HF) is a common clinical syndrome resulting from any structural or functional cardiac disorder that impairs the ability of the ventricle to fill with or eject blood. It's a major global public health problem affecting an estimated 26 million people around the world. Following the result from the PARADIGM-HF trial and ESC guidelines, adding a neprilysin inhibitor (sacubitril) to ARB blocker and other standard therapy, reduced morbidity and mortality in patients with chronic, symptomatic, ambulatory HF with reduced ejection fraction (HFrEF). We report a case of a 50-year old male with HF with reduced ejection fraction, dilated cardiomyopathy possibly related to myocarditis and severe mitral functional regurgitation. Comorbidities-Hypertenison, Diabetes type II, Obesity and hyperlipidemia. Sacubitril/valsartan treatment was initiated after when we exclude coronary artery disease with coronary angiography and we diagnosed severe mitral regurgitation with left ventriculography and transesophageal echocardiography. After six months with sacubitril/valsartan and other optimal therapy, the patient is currently in good condition, improved functional capacity, slightly improved ejection fraction and moderate mitral regurgiatation and we titrate the dose of the drug. ARNI may be considered for optimal medical therapy of patients with HFrEF and functional MR

K11. Cardiac Magnetic Resonance: Valuable Imaging Tool in a Selection of Cases in North Macedonia

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Cardiac magnetic resonance (CMR) is a well established imaging modality, recognized for its value in assessment and monitoring of a wide range of cardiac diseases. CMR does not use ionizing energy, representing safe tool that provides valuable diagnostic and prognostic information.. However, long patient scanning time and expense are setting CMR back from being the absolute superior cardiologic diagnostic modality. Here we present four cases where CMR was crucial in diagnosis establishing and further patient management: 1. Sixty-year old woman presenting with chest pain, electrocardiogram changes and elevated troponin levels was referred for coronary angiogram which came back negative for coronary obstructive disease. Echocardiogram showed left ventricular apical aneurysm so TakoTsubo Cardiomyopathy was initial diagnosis. One month follow up showed complete recovery of dyskinesia implying correct diagnosis but that CMR was performed and results were corresponding with myocardial infarction. 2. Twenty four year old male with symptoms of dyspnea and left ventricular hypertrophy. CMR revealed hypertrophic cardiomyopathy with LVOT gradient, SAM, elongated anterior mitral cusp and significant mitral regurgitation. Late gadolinium enhancement (LGE) was detected in more than 11% of the left ventricular myocardium. Patient was referred for mitral valve surgery and is planned for intracardiac defibrillator device (ICD).3.Forty six year old male with complaints of sudden onset of tachycardia and frequent extrasystoly. CMR revealed prominent trabeculations in left and right ventricle with reduced ejection fraction. The finding was compatible with noncompaction cardiomyopathy. 4.Male of 60 years referred for CMR after echocardiographic finding of right atrial mass suspected for thrombus. Examination revealed very mobile pedunculated mass with hyperintensity in T2 and heterogeneous LGE referring to myxoma. Patient had surgery and histopathology confirmed the diagnosis. Cardiac magnetic resonance has established and evolving role in diagnosis and prognosis of number of cardiac conditions and is often of crucial for proper patient management.

K12. Left ventricle(LV) and Left atrium function in patient with aortic valve stenosis.Echocardiography analysis

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The Aotic valve stenosis(AS) has impact in functioning of the Left ventricle (LV) and Left atrium(LA) by decreasing the Ejection Fraction(EF) and Longitudinal strain(LS).This effect is more pronounced in LA functioning, due to a smaller possibility of adaptation. **Objectives.** The objective of the study was echocardiography analyze of left atrium (LA) and Left ventricle(LV) function, in patients with aortic stenosis(AS) compare to group of persons, without cardiac disease . The objective of the study is to conduct an echocardiographic analysis of the left atrium (LA) and Left ventricle(LV)function, in patients with aortic stenosis(AS) compared to a group of individuals without any cardiac disease. **Matherial.** 30 patient with AS, with Peak Gradient(PG) of Aortic valve (AOV) above 64 mmHg vs second group from 30 patient, with moderate AS with PG of AOV under 64 mmHg. The boat groups where compared with results from 60 persons,without known heart disease. **Method.** Ultrasound was performed using Philips IE 33 xMAtrix with X5-1 transducer. Analysis was done using Tomtec software. In case of LV we have analyzed Ejection Fraction(EF), End-diastolic volume of LV(EDV), endocardial global strain GLS(EndGLS), Myocardial Global strain(MyoGLS),Radial strain(RS) and Time to peak values(T2P). For LA, we have analyzed the EF, EDVof LA, ,GLS of LA,E wave strain rate(SR) and A wave SR of LA, Fractional area shortening (FAC). **Results.** In Table. the decrease all functional indices of LV function (EF,End GLS,MyoGLS,GRS) in AS group, more pronounced in case of severe AS, above 64 mmhg. In table 2, in LA function, decreasing of all functional indices is registered (EF ,FAC, GLS of LA and E and A wave Strain rate of LA).

Table 1.LV Function and figure 1(LV function values)

Twodimensional	mesure-ment		LV				
	EF(%)	EDV (ML)	EndGLS (-%)	myo GlS (-%)	GRS (%)	TP-TS (%)	TP_LS (%)
Cor B.o	59.67	79.75	21.79	17.69	51	21.18	5.76
Aov sten <64 mmhg	56.94	93.58	19.15	14.68	40.87	18.31	7.16
Aov sten >64 mmhg	49.52	100.61	16.53	12.50	38.89	19.67	6.45

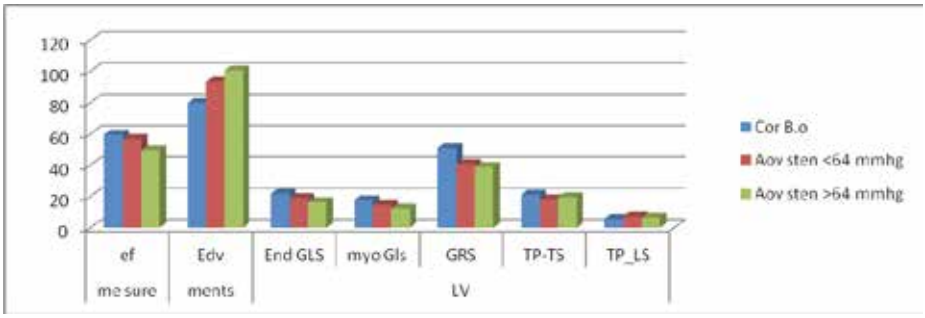
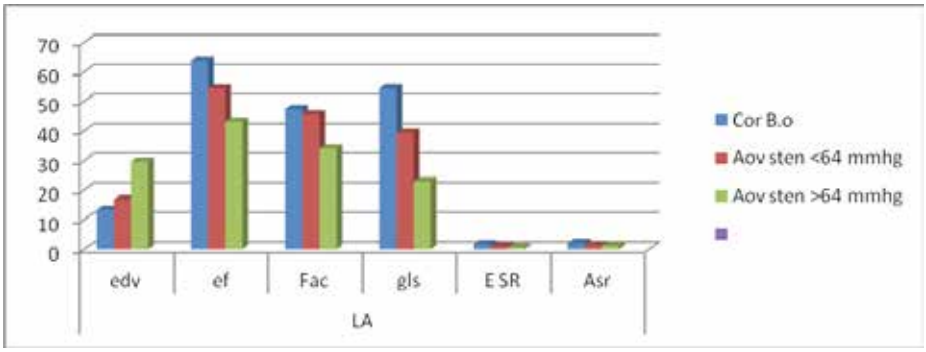


Table 2 and Figure 2(LA values)

	LA					
	EDV(ml/m2)	EF(%)	FAC(%)	GLS(-%)	E SR(%)	A SR(%)
Cor B.o	26.57	63.90	47.31	54.47	1.75	2.16
Aov sten <64 mmhg	32.83	54.42	45.56	39.39	1.105	1.46
Aov sten >64 mmhg	58.15	43.26	34.12	22.99	0.69	1.27



Conclusions. Systolic indices of LV in group of severe AS ,are lower then normal values. In mild and moderate AS ,LV indices are in normal ranges.In severe AS , all LA values are lower then normal values for LA functioning. In mild and moderate AS ,LA indices are in normal ranges. Increase of the EDV of LA, is registered only in group with severe AS.

K13. Surgical treatment of Infective endocarditis in pregnant patient

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A 23-year-old woman in her 29th gestation week of pregnancy was admitted in Obstetrics and Gynaecology Department with symptoms of fever, dyspnea and shortness of breath. The blood test examinations showed significant leukocytosis and elevated c-reactive protein levels. Transthoracic (TT) echocardiography was performed showing severe mitral valve regurgitation with posterior cusp destruction confirming the diagnosis of infective endocarditis. The condition of the patient significantly deteriorated, and she was urgently transferred to the Cardiovascular Surgery Department for an emergent surgical treatment. She was admitted in the Intensive Care Unit with clinical signs of severe septic shock and severe left heart insufficiency. A consultation of gynecologist was performed and fetal death in utero from fetal ultrasonography was diagnosed. A decision for an emergent simultaneous operation was taken. During the anesthesia induction the patient developed severe circulatory shock needing a cardiopulmonary resuscitation which restored the spontaneous circulation after one minute. At first, before heparinization sectio parva was performed confirming the diagnosis of fetal death. During the cardiac operation after the cardiopulmonary bypass (CPB) institution, mitral valve replacement and inspection of the tricuspid valve was performed. The CPB was discontinued with three catecholamine support. In the postoperative period she was febrile with severe multiple organ system failure (MOSF) manifestation, generalized single tonic-clonic seizure and in the following hours three seizures with focal onset (muscle contractions in the right facial half) were observed. On the postoperative day (POD) 2 she developed clinical signs of blue discoloration of the distal phalanx of the left foot. Doppler ultrasound examination showed subtle pulsations on the left dorsal pedal artery. Ultrahemofiltration with antiseptic filter was performed for cytokine removal. In the following days the condition of the patient improved. She was extubated on POD 4, transferred to the post-operative department on POD 7 and discharged on POD 23. Despite advances in medicine, the treatment of the infective endocarditis is associated with high mortality and complication rates. Multidisciplinary collaboration is crucial for achieving the best outcome.

K14. Emergency patch repair of posterior Left Ventricle wall rupture

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Introduction: Left ventricular wall rupture is very rare condition. There are few publications of deliberate needle injuries in context of physical violence or self-inflicting harm in the context of advanced psychiatric conditions. **Objective:** Exposing the complexity of treatment for left ventricular wall rupture and care involved in the treatment. **Material and Method:** Case presentation of a 32-year-old intra venous drug user has presented with shock at the emergency department in Russell's Hall Hospital on the 8th July 2019. Patient had background of needle fracture during iv drug injection that resulted with needle mobilisation to the pulmonary circulation two months ago. Immediate diagnosis of cardiac tamponade resulted in drainage of fresh blood. The patient was transferred to New Cross Hospital Heart and Lung Centre. At admission patients stil had the drain in the pericardium with 700ml of blood drained since insertion. Systolic arterial blood pressure was 90mmHg and patient was peripherally cold. Chest x-ray presented visible needle behind the heart shadow, most likely in the left lower lobe. Treatment was undertaken with emergency sternotomy. Around 500ml fresh blood was still present in the pericardium. Lifting the heart showed defect in the muscle of the posterior wall of the left ventricle, supplied by a Large Obtuse Marginal artery deriving from the Left Circumflex Coronary Artery. The size of the defect was 4 x 1.5 cm and did not appear transmural. First attempt for patching the defect was done on beating heart. Due to unsatisfactory result the repair was continued on cardio pulmonary bypass: the heart was elevated and seven horizontal mattress sutures with Cardio cel pledgets were placed around the defect. The defect than covered with TachoSeal and Exocel glue. Onto this, CardioCel patch was parachuted. This was quite large with about 1.5cm margin around the defect. The mattress sutures were then tied taking care not to cut through any muscle. **Result:** Finally, the whole patch was covered with again TachoSeal larger than the pericardial patch. This all gave a good technical result. **Conclusion:** Spontaneous heart injuries are very rare conditions. Full functionality of the health system is essential in every segment for treating of these patients. Expertise and awareness are decisive in surgical intervention as definitive resolution of this condition.

K15. Mitral valve prolaps as a reason for significant mitral regurgitation

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Mitral valve prolapse (MVP) is a valvular heart disease primary form of myxomatous degeneration of the valve, characterized by the displacement of an abnormally thickened mitral valve leaflet into the left atrium during systole. MVP is the most common cause of severe, non-ischemic mitral regurgitation. We present a female patients, 50 years age old, who knows about the murmur many years ago, but she was asymptomatic. She came in Clinical Hospital, Tetovo with signs of fatigue, tachycardia, dyspnea. ECG was no conclusive, and on auscultation a severe systolic murmur on the mitral position was found. Echocardiography showed a myxomatous degeneration of the boat mitral valve, with significant, severe mitral regurgitation (ERO 0,34, regurgitant volume 46 ml, vena contracta 5,8mm). There was increased dimension of left atrium (48 mm), and left ventricle (62mm), with normal EF (64%), and signs of volume overload of the left ventricle. Estimated SPAP was 42 mmHg. Patient was symptomatic with objective echo parameters for severe mitral regurgitation. Patient was sent to the surgical department, according ESC guidelines for diagnosis and treatment of chronic mitral regurgitation.

K16. VSD in young woman – case report

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Introduction: Ventricular septal defect (VSD) is the most common congenital cardiac anomaly in children and second most common congenital abnormality in adults. Colored Doppler TTE can detect up to 95% of VSDs, especially non-apical lesions larger than 5 mm. **Objectives:** Presentation of case of congenital VSD in 19 years old asymptomatic girl, with progression of the disease after 5 years of follow up. **Materials and methods:** ECG, Color Doppler Echocardiography, Hollter ECG. **Result and conclusion:** First cardiological examination of 19 years old asymptomatic girl because of heard loud, harsh, holosystolic murmur at the lower left sternal border. Her ECG and blood pressure were normal. Echocardiography examination showed presence of VSD in the muscular part of interventricular septum 8mm in diameter, with left to right shunt. Mild TR with estimated PAPs of 20mmHg (not indicative for PAH). Normal dimensions of left atrium and ventricle, right atrium and ventricle. It was noticeable hyperkineticity in left ventricle wall motions