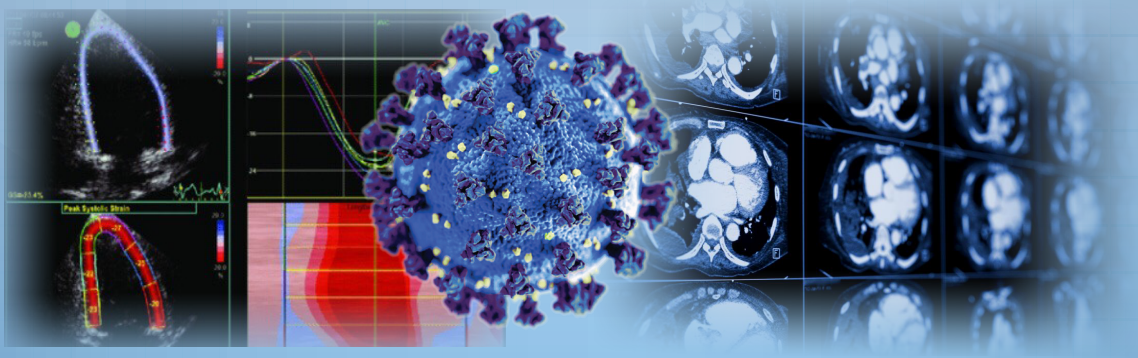
International Symposium of Cardiovascular Imaging and COVID 19 experience in collaboration with EACVI Heart Imagers of Tomorrow



ABSTRACT BOOK

North Macedonian Society of Cardiology

3-4th of October, 2020, Skopje, North Macedonia

INTERNATIONAL SYMPOSIUM OF CARDIOVASCULAR IMAGING AND COVID19 EXPERIENCE IN COLLABORATION WITH EACVI HEART IMAGERS OF TOMORROW

ABSTRACT BOOK

03-04th of October 2020, Skopje, North Macedonia

ШЕСТИ КОНГРЕС НА МАКЕДОНСКОТО ЗДРУЖЕНИЕ ПО КАРДИОЛОГИЈА СО МЕЃУНАРОДНО УЧЕСТВО

SIXTH CONGRESS OF THE MACEDONIAN SOCIETY OF CARDIOLOGY WITH INTERNATIONAL PARTICIPATION

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WELLCOME ADDRESS

Dear colleagues,

In the time of COVID 19 pandemic, fighting with the invisible enemy, we hope you are all healthy and safe. It is a great challenge for all of us, from different aspects. Evan in this period, education, the exchange of knowledge is an important part of our lives.

On behalf of the organization committee of North Macedonian Society of Cardiology, it is our pleasure to wellcome you to our online Cardiology Symposium which is held on the 03-04 th of October, 2020.

The virtual Symposium will include young and esteemed cardiologists who will share their experience and knowledge on different topics from imaging. It will be our pleasure to have you as a speaker on a subject that you prefer, lecture on particular imaging topic, or case report.

Cardiovascular imaging, are very important segment for on time diagnosis, prognosis, treatment decision and follow up of cardiovascular diseases Also, your experience with "Cardiovascular Impact of COVID-19" can be a topic of your lecture of the Symposium. Macedonia still has a huge number of infected people with COVID 19, significant morbidity and mortality, and the experience from other country will be very grateful.

We are looking forward to your participation in this exciting meeting.

Sincerely,
Prof. Elizabeta Srbinovska Kostovska, FESC, FEACVI, FACC
President of the North Macedonian Society of Cardiology

Saturday, 3 October 2020			
09:45-18:00	Registration with user name and password or e-mail		
Moderators		**OPENING OF THE SYMPOSIUM**	**LECTURER**
10:00 - 10:15	15'	Opening of the International Symposium by President of North Macedonian Socienty of cardiology	Elizabeta Srbinovska Kostovska, North Macedonia
10:15 - 10:20	5'	North Macedonia EACVI HIT Ambassador	Irina Kotlar, North Macedonia
10:20 - 10:25	5'	Address by the Director of the University Clinic of Cardiology, Skopje, North Macedonia	Zan Zimbakov, North Macedonia
10:25 - 10:50	25'	Honorary lecture "Tricuspid Regurgitation no more forgotten. How to assess ?	Pepe Zamorano, Spain

Session 1 10:50 - 12:20	Cardiovascular imaging in cardiac diseases		
Moderators	Marija Vavlukis, North Macedonia		**LECTURER**
10:50 - 11:10	A1 (20')	Advance echo in advanced heart failure	Matteo Cameli, Italy
11:10 - 11:30	A2 (20')	Cardiac magnetic resonance in heart failure	Sarah Moharem Elgamal, Egypt/ UK
11:30 - 11:50	A3 (20')	The role of Cardiac magnetic resonance in cardiac diseases	Tomaz Podlesnikar, Slovenia
11:50 - 12:10	A4 (20')	Management of patients with mechanical support	Tanja Anguseva, North Macedonia
12:10 - 12:20	D1 (10')	Discussion / ДИСКУСИЈА ВО ЖИВО	

13:05 - 13:20	EPP1 (15`)	BRAKE	

Session 2 13:20 - 14:50	Cardiovascular imaging in cardiac diseases		
Moderators	Hristo Pejkov, North Macedonia		**LECTURER**
13:20 - 13:40	A5 (20')	Systolic function of LV in patient with obesity and extreme obesity	Svetlin Tsonev, Bulgaria
13:40 - 14:00	A6 (20')	CMR value in non-ischemic cardiomyopathies	Tomas Lapinskas, Lithvania
14:00 - 14:20	A7 (20')	Role of echocardiography in pulmonary embolism	Sasa Kaeva Anastasova/N. Macedonia
14:20 - 14:30	A8 (10')	Acute coronary syndrome-case report	Milica Stefanovic, Serbia

14:30 - 14:40	A9 (10')	Natural history and echocardiography features of chronic mitral regurgitation caused by mitral valve prolapse and flail mitral leaflet" - case report	Hristina Chamovska Sheshoska, North Macedonia
14:40 - 14:50	D2 (10')	Discussion / ДИСКУСИЈА ВО ЖИВО	

15:20 - 15:30	EPP2 (10')	BRAKE	

Session 3 15:30 - 17:20	Cardiovascular Imaging and COVID 19		
Moderators	Marijan Bosevski, North Macedonia		LECTURER
15:30 - 15:50	A10 (20')	Lung Ultrasound in COVID-19	Hatem Soliman, Egypt/UK
15:50 - 16:10	A11 (20')	Echocardiography in COVID-19	Hani Mahmoud, Egypt/UK
16:10 - 16:30	A12 (20')	Pulmonary embolism and COVID 19	Irina Kotlar, North Macedonia
16:30 - 16:50	A13 (20')	Role of POCUS in COVID-19 times	Aleksander Nossikoff, Bulgaria
16:50 - 17:10	A14 (20')	COVID 19 pandemic and Cardiac Imaging	Valentina Andova, North Macedonia
17:10 - 17:20	D3 (10')	Discussion / ДИСКУСИЈА ВО ЖИВО	

Sunday, 4 October 2020			
09:45-15:00	Registration with user name and password or e-mail		
Session 4 10:00 - 11:30	Cardiovascular Imaging in Valvular heart Diseases		
Moderators		Jorgo Kostov, North Macedonia	LECTURER
10:00 - 10:20	A15 (20')	Interesting cases on transcateter interventions	Julia Grapsa, Grecce/ UK
10:20 - 10:40	A16 (20')	Patient selection and imaging guidance during mitraclip	Ozge Ozden Tok, Turkey
10:40 - 11:00	A17 (20')	Low flow-low gradient aortic stenosis: a multimodality imaging challenge	Corrado Fiore, Italy
11:00 - 11:20	A18 (20')	New insights into mitral anulus function in degenerative mitral valve disease	Vlatka Reskovic, Croatia
11:20 - 11:40	A19 (20')	Interventional procedures versus surgical treatment in patients with mitral regurgitation	Marija Geracarovska, North Macedonia
11:40 - 11:50	D4 (10')	Discussion / ДИСКУСИЈА ВО ЖИВО	

12:20 - 12:30	EPP3 (10`)	BRAKE	

Session 5 12:30 - 14:00	Adult congenital heart disease		
Moderators		Elizabeta Srbinovska Kostovska, North Macedonia	LECTURER
12:30 - 12:50	A20 (20')	How to assess the most common congenital heart diseases in adults	Margarita Brida, Croatia
12:50 - 13:10	A21 (20')	Role of 3DE in ACHD	Elena Surkova, Russia/UK
13:10 - 13:30	A22 (20')	Approach to CHD for non CHD experts	Sara Moscatelli, Italy
13:30 - 13:50	A23 (20')	Noninvasive imaging in Adult congenital heart disease: recommendations from the latest ESC guidelines	Irena Mitevska, North Macedonia
13:50 - 14:00	D5 (10')	ДИСКУСИЈА ВО ЖИВО	

14:45 - 16:45	ABSTRACT SESSION		
Moderators	**Lidija Poposka**		**LECTURER**
14:45 - 14:55	AP1 (10')	The role of D-dimer in prognosis with pulmonary tromboembolism: some aspects for COVID	G.Krstevski, N.Petkovic,M. Stevanovic, K.Kasparov,E.Dodic, M.Bosevski, North Macedonia
14:55 - 15:05	AP2 (10')	Patient with Takotsubo cardiomyopathy initially hospitalized as bilateral pneumonia, suspected of COVID- 19 infection	P.Zafirovska, T.Anguseva, L.Veljanovska Kiridzievska, Z.Mitrev, N.Macedonia
15:05 - 15:15	AP3 (10')	Spontaneous pneumothorax in a COVID-19 patients - a case report	G.Kamceva, North Macedonia
15:15 - 15:25	AP4 (10')	Fulminant myocarditis in COVID 19 patient	E.Grueva, North Macedonia
15:25 - 15:35	AP5 (10')	Rhythm disturbances in a patient with cardiac resynchronization therapy defibrillator and heart failure - first sign for COVID - 19	A. Chelikikj, D.Risteski, Svetislav Jovev, N.Macedonia/ Bulgaria
15:35 - 15:45	AP6 (10')	Radiological and clinical aspects of COVID 19 patients in Povardarie region	A.Gjorgievski, V.Nikolovska Nedelkova, M. Bosevski, N.Macedonia
15:45 - 15:55	AP7 (10')	Spontaneus pneumoperitoneum and subcutaneous emphisema as unusual complication of CORONA virus disease	S.Dokuzova, G.Kamceva Mihailova, N.Macedonia
15:55 - 16:05	AP8 (10')	Change in blood pressure during exercise test, as a predictor for event in asymptomatic aortic stenosis	E.Antova, N.Macedonia
16:05 - 16:15	AP9 (10')	Which is the most important exercise parameter for asymptomatic aortic stenosis	E.Antova, N.Macedonia
16:15 - 16:25	AP10 (10')	Dilemmas in the treatment of severe aortic stenosis in a patient with concomitant carotid stenosis: TAVI versus surgical treatment-case report	E.Lazarova, North Macedonia
16:25 - 16:35	AP11 (10')	Dilatation of the pulmonary trunk and its branches - a case report	M.Mancheva, L.Kostovski, N.Siljanovski, V.Miluseva Trendova, North Macedonia
16:35 - 16:45	AP12 (10')	Acute heart failure in patient with Infective endocarditis on dialysis	J.Nestorovska, A. Celikic, M.Srbinovska Josifovska, North Macedonia

16:45 - 16:50	E-POSTER SESSION		
Moderators	Irena Mitevska		LECTURER
16:45 - 16:50	PP1 (5')	COVID 19 and pulmonary embolism - a case report	E.Nechevska, M.Jankulovska, North Macedonia
16:50 - 16:55	PP2 (5')	Spontaneous pneumomediastinum in a adult with bilateral pneumonia. Complication of COVID or not? - a case report	G.Kamceva, North Macedonia
16:55 - 17:00	PP3 (5')	Correlation between velue of D-dimer and mortality in patients with COVID-19	E.Kikirkovska, Z.Servini, N.Lozance, E.Shiskovska Stepanovska, North Macedonia
17:00 - 17:05	PP4 (5')	False negative COVID-19 test in patient with corona virus symptoms- a case report	G.Kamceva Mihailova, G.Karadgozova, S.Dokuzova, G. Dimova, North Macedonia
17:05 - 17:10	PP5 (5')	Patient with severe mental illness and COVID 19	S.Dokuzova, G.Kamceva Mihailova, S.Jordanova, N.Macedonia
17:10 - 17:15	PP6 (5')	Takotsubo cardiomyopaty and diagnosis - a case report	V. Andova, North Macedonia
17:15 - 17:20	PP7 (5')	Mitral valve prolapse - a case report	B.Shishkova, M.Bogeska Blazevska, N.Macedonia
17:20 - 17:25	PP8 (5')	Hypertrophic Cardiomyopathy - a case report	M.Bogeska Blazevska, B.Shishkova, N.Macedonia
17:25 - 17:30	PP9 (5')	Severe tricuspid regurgitation and chronic respiratory failure - a case report	A.Milosavljevic, V.Miluseva Trendova, L. Radonchikj, F.Arnaudova Dezhulovikj, N.Macedonia
17:30 - 17:35	PP10 (5')	Deep vein trombosis and pulmonary embolism in cirrhotic patients	S. Paljoskovska Jordanova, M.Bosevski, North Macedonia
17:35 - 17:40	PP11 (5')	Combined diagnostic approaches to portal venous thrombosis	M.Boskovski, E.Simonovska Nikolovska, G.Denkovski, M.Trajkovska, North Macedonia
17:40	(5`)	CLOSURE OF THE SYMPOSIUM	

CARDIOVASCULAR IMAGING IN CARDIAC DISEASES

A9 NATURAL HISTORY AND CLINICAL OUTCOME OF CHRONIC MITRAL REGURGITATION CAUSED BY MITRAL VALVE PROLAPSE AND FLAIL MITRAL LEAFLET

H.Chamovska Sheshoska, E. Srbinovska Kostovska, K. Petroska, V. Miluseva Trendova

Special hospital for prevention, treatment and rehabilitation on cardiovascular disease-St. Stefan, Ohrid, N. Macedonia; University Clinic of Cardiology, Faculty of Medicine, St.Cyril and Methodius University, Skopje, N.Macedonia, General hospital Strumica, N.Macedonia

Introduction: Mitral regurgitation due to mitral valve prolapse (MVP) and flail leaflet is difficult to manage, because it is frequently asymptomatic and carries a high risk of left ventricular dysfunction and because the natural history of the condition is poorly defined. The indication for surgery in patients with severe primary mitral regurgitation (MR) is currently based on the presence of symptoms, left ventricular (LV) dilatation and dysfunction, atrial fibrillation and pulmonary hypertension. **Objectives:** The aim of this study is to assess timing for intervention in patients with asymptomatic severe primary MR and to predict clinical outcome according to new staging classification based on cardiac damage including the known risk factors but also including Global longitudinal strain (GLS), severe left atrium (LA) dilatation and right ventricular (RV) dysfunction. **Case report:** 59 years old female with posterior MVP and consequent MR, came on a regular checkup. The patient was asymptomatic, EKG showed no signs of acute heart failure. Echocardiography revealed rupture of chordae tendineae of posterior mitral leaflet with worsening of mitral regurgitation severity, compared with previous findings. Colour doppler echocardiography revealed severe regurgitation with the following PISA parameters: ERO 0.43cm2, regurgitation volume 57ml/beat and vena contracta6.5mm and moderate secondary tricuspid regurgitation was observed with SPAP 50mmHg. 2D echocardiography

revealed increased diameter of left atrium LA 55mm, left atrium volume index (LAVI) 60ml/m2 and normal dimensions of the other chambers. Ejection fraction was preserved LVEF 65%, diastolic diameter of the left ventricle was LVEDd 55mm and the volume was 94ml, systolic diameter was LVEDs 40mm and the volume was 41ml. GLS revealed normal 18,5%. **Conclusion:** According to 2017 ESC/EACTS Guidelines for the management of valvular heart disease, in patient with asymptomatic severe primary mitral valve regurgitation with flail leaflet surgery should be considered with Class IIa recommendation. According to novel staging classification based on myocardial damage the patient is in stage 3. For each stage increase, a 22% higher risk for all-cause mortality is observed. In patients with severe primary MR due to MVP with flail leaflet likelihood of successful repair is >95% and expected mortality <1%. A novel staging classification based on the extent of cardiac damage, may help refining risk stratification.

Key words: mitral valve prolapsed, flail leaflet, echocardiography

CARDIOVASCULAR IMAGING AND COVID 19

A12 PULMONARY EMBOLISM AND COVID -19

I. Kotlar Velkova, I. Mitevska, E. Grueva Nastevska, O. Busletik, M. Bosevski, E. Srbinovska Kostovska

University Clinic of Cardiology, Skopje, Republic of N. Macedonia

Since December 2019, the severe acute respiratory syndrome corona virus (SARS-CoV-2) outbreak has reached pandemic proportion and has become a public health crisis of unprecedented magnitude. Although corona virus disease-2019(COVID-19) primarily targets the respiratory system, the cardiovascular system can also be affected in a significant percentage among the patients. Cardiac injuries appear to be a prominent feature of the COVID-19 infection as they occur in 20-30% of the hospitalized patients and are often responsible for deadly outcome. Pulmonary vascular complications such as pulmonary embolism are frequently present, with higher prevalence in COVID-19 than usually encountered in critically ill patients who do not suffer from infection. Moreover, there is a rising evidence that traditional risk factors for PE are not commonly encountered among the patients with COVID-19 infection but rather independent biological and clinical findings, with the inflammation as a main contributor of thromboembolism. The endothelial dysfunction, abnormal hemostasis, severe lung inflammation and disseminated intravascular coagulation play a central role in the predisposition to venous thromboembolic events. Integrated approach of heart and lung multimodality imaging has a crucial role in different clinical scenarios and is of great importance in the diagnosis, management, risk stratification and prognosis of patients with COVID-19, providing a base for further clinical decision making. Routine history, physical examination, laboratory testing, electrocardiography, and plain x-ray imaging may offer the required information in some of the cases but the overlap between COVID-19 and typical cardiovascular diagnoses such as acute myocardial infarction, heart failure and acute pulmonary embolism, mandate advanced imaging techniques to assist in differential diagnosis and treatment. Baseline CT is the most used tool to confirm diagnosis and to give information about the disease extent and severity, but it is also a reference for subsequent imaging follow-up. According to some studies, the sensitivity of chest CT for COVID-19 was 97%. In the clinical

scenario of a patient with COVID-19, who has just undergone CT of the lungs but the findings cannot explain the severity of respiratory failure, CT pulmonary angiography should be considered to exclude/confirm pulmonary embolism. We hereby report a case of 72y/old patient who was admitted at our clinic (which is not a COVID-center) with severe chest pain and signs of hemodynamic instability. His ECG revealed a heart rate of 125/min, right axis deviation and S1Q3T3 pattern. Bedside echo showed severely dilated RV with reduced systolic function and features of pulmonary hypertension. His laboratory findings were consistent with leukocytosis with lymphopenia, elevated CRP, extremely elevated D-dimers and high troponin. Anticoagulation was immediately initiated by using UFH. The patient was referred to CT angiography and it revealed bilateral filling defects in the main pulmonary arteries. Bilateral peripheral ground-glass opacities and small areas of consolidation were also present which raised the suspicion of COVID-19 infection. The swab for SAS-COV-2 was positive. The patient underwent systemic fibrinolysis with full-dose alteplase, with rapid hemodynamic and respiratory success. His further treatment included therapeutic dose of LMWH, parenteral antibiotic and gastroprotective treatment. The repeated echocardiographic exam showed a clear improvement of the hemodynamics of the RV, a reduction of RV dilatation and of pulmonary pressures and reduction of vena cava diameter. The patient was transferred for further treatment at the COVID department and was discharged 2 weeks later after his full recovery and was advised to continue with oral anticoagulant therapy Conclusion: PTE is frequently observed among COVID-19 patients and this complication can happen in the absence of major predisposing factors. COVID-19 pneumonia seems to confirm the impact of severe respiratory infection as a precipitant factor for acute venous thrombo-embolism and the causal relationship. Multimodality imaging in COVID-19 patients with suspected cardiac involvement by using POCUS, chest CT and pulmonary angiography is of crucial importance for rapid differential diagnosis and treatment especially in patients with hemodynamic instability. The use of systemic thrombolysis in haemodynamically unstable patients is the first and more appropriate therapeutic strategy, considering the current guidelines recommendations for management of acute PE. However, thrombocytopenia occurs in a non-neglectable proportion of patients with COVID-19 infection and is an independent predictor of increased mortality in these patients. The reperfusion strategy of COVID-19 patients must be tailored according to the severity of thrombocytopenia where catheter directed treatment might be potential first line therapeutic approach.

Keywords: COVID-19, pulmonary embolism, multimodality imaging

ABSTRACT SESSION

AP1 THE ROLE OF D-DIMER IN PROGNOSIS OF PATIENTS WITH PULMONARY THROMBOEMBOLISM: SOME ASPECTS FOR COVID-19

G. Krstevski[1], N. Petkovic[2], M. Stevanovic[3], K. Kapsarov[3], E. Dodic [4], M. Bosevski[1], National Registry on Venous Thrombembolism

[1] St.Cyril and Methodius Faculty of Medicine, University Cardiology Clinic, Skopje, N. Macedonia,

[2] 8st September Hospital, Skopje,

[3] University Clinic for Infective Diseases, Skopje,

[4] General Hospital, Kumanovo, N. Macedonia

Despite the diagnostic role of D-dimer in the identification and treatment of pulmonary thromboembolism, many questions still remain regarding its potential role in the clinical prognosis of these conditions. Many studies assess different combinations of echocardiographic parameters along with different clinical scores in various populations, making the data difficult to interpret. In recent times, pulmonary thromboembolism has taken on new importance, as a common clinical exacerbation following SARS-CoV-2 infection and the resultant disease state of COVID-19. Here we present, stable, clear data from a national registry taken from multiple centers. It aims to assess the predictive value of D-dimer when combined with other parameters in the long term prognosis of patients with pulmonary thromboembolism. Additionally, a group of patients with COVID-19 were tested for D-dimer and compared to non-infectious pulmonary thromboembolism patients, to establish a prognostic role for the biomarker.

Key words: D-dimer, pulmonary thromboembolism, COVID-19, SARS-CoV-2, prognosis

AP4 FULMINANT MYOCARDITIS IN COVID 19? - CASE REPORT

E. Grueva Nastevska, O. Busletik, I. Mitevska, I. Kotlar Velkova, E. Kandic

University Clinic of Cardiology - Skopje, N.Macedonia

Introduction. Fulminant myocarditis (FM) is a syndrome characterized by sudden and severe diffuse cardiac inflammation often leading to death resulting from cardiogenic shock, ventricular arrhythmias, or multiorgan system failure. Clinical presentations vary widely, but the main characteristic is a rapidly progressive clinical course with the need of hemodynamic support. The true prevalence of COVID-19 acute myocarditis is unknown. Several cases of clinically diagnosed myocarditis in patients with COVID-19 have been reported, but the number of autopsy and endomyocardial biopsy (EMB) proven cases is limited. Myocarditis is classified as acute, chronic or fulminant, the latter being a sudden, severe manifestation associated with acute heart failure, cardiogenic shock and life-threatening arrhythmias. Viral infections such as enteroviruses and adenoviruses are common causes of myocarditis, which can cause a combination of direct cellular injury and T-cell cytotoxic response. **Case report.** 73y old male, with history of diabetes and hypertension, was admitted in our cardiac intensive care unit, transferred from the clinic of Endocrinology where he was treated due to hyperosmolar hyperglycemic state. On admission the patient's cardiovascular examination revealed him to be with tachyarrhythmia without audible heart murmurs or an elevated jugular venous pressure. The respiratory examination revealed soft inspiratory crackles bibassaly. His vital signs included a heart rate of 149 b.p.m., blood pressure of 119/63mmHG, pulse oximetry of 86% SaO2 and a body temperature of 37.9C. The initial chest X-ray showed no abnormalities of the lung parenchyma. The biomarkers of myocardial injury were significantly elevated (cTn -40.103ng/L) along with the levels of blood creatinine and urea. Electrocardiography (ECG) showed atrial fibrillation with non-specific ST segment and T wave changes. Bedside echocardiography was made immediately, and the findings were: Mildly enlarged left ventricle with severely reduced ejection fraction (26%), with a global hypokinesia. Right ventricle with normal size and a formation suspected for thrombus in the right atrium. Shortly after the admission, his clinical course deteriorated, and he was in cardiogenic shock. Inotropic treatment was initiated along with anticoagulation, diuretic, antiarrhythmic and antibiotic treatment. The blood gas analysis showed elevated lactate -3,4mmol/L, hyposaturation and compensated metabolic acidosis. He was tested for SARS-COV2 and the test was positive. Unfortunately, due to the patient's rapidly progressive clinical course, cardiac magnetic resonance imaging wasn't feasible. The patient was hemodynamically stabilized, and under suspicion for fulminant myocarditis based on the ECG, laboratory and echocardiography findings, he was transferred to a cardiac COVID intensive care unit. Two days later his condition got worse and the patient died. **Discussion**. Even though the current recommendations imply the use of CMR and EMB as a diagnostic tool for myocarditis,

their application in the COVID-19 pandemic is limited, as it was in our case. **Conclusion.** The European Society of Cardiology (ESC) position statement on the management of acute myocarditis recommends the assessment of serum cTn, erythrocyte sedimentation rate, and C-reactive protein to aid in the diagnosis of myocarditis. Early use of echocardiography is essential to establish a diagnosis and the severity of cardiovascular compromise. What was surprising in our case report is the sudden cardiac manifestation of the COVID-19 without the usual clinical signs of respiratory tract involvement. In the settings where CMR and EMB are not feasible from an infection control standpoint, the diagnose should rely on the integration of clinical, laboratory (cardiac biomarkers), electrocardiographic (ST-segment changes), and echocardiographic wall motion abnormalities, ejection fraction, and pericardial effusion data (American Heart Association "Approach to Acute Cardiovascular Complications in COVID-19 Infection").Future studies should focus on reliable diagnosis of myocarditis in an outbreak scenario, and characterizing these patients in larger, prospective studies.

AP5 RHYTHM DISTURBANCES IN A PATIENT WITH CARDIAC RESYNCHRONIZATION THERAPY DEFIBRILLATOR AND HEART FAILURE - FIRST SIGN FOR COVID - 19

G. Chelikikj[1], D. Risteski[1], S. Jovev[2]

[1] University Clinic of Cardiology, University "St. Cyril and Methodius", Medical Faculty, Skopje, Republic of N. Macedonia,

[2] St Ekaterina Hospital, Sophia, Bulgaria

Background: Coronavirus disease (COVID -19) has been associated with greater prevalence of arrhythmias and conduction system disease in patients with established cardiovascular disease (CVD). Hypoxia, cytokine storm and electrolyte abnormalities are the pathological substrate that leads to an increased risk for arrhythmias. **Case summary.** A 70 - year - old patient presented in our emergency room due to weakness and dizziness. On admission the patient was afebrile, hemodynamically stable, with an ECG finding of atrial fibrillation (AF) with ventricular rate 180/min and QRS morphology of LBBB. His past medical history included ischemic cardiomyopathy (PCI/Stenting in 2005). He was implanted with a cardiac resynchronization therapy defibrillator (CRT - D) in 2016. During the follow- up in the past four years, there were no VT episodes detected or a high AF burden. Pacemaker troubleshooting on admission day detected a high AF burden and a VT episode terminated with a CRT – D shock. Laboratory findings showed mildly elevated Troponin I (68.4ng/L) and decreased potassium levels (K=3.3mmol/L). The patient was treated with parenteral sedation, potassium supplementation, beta blockers, class III antiarrhythmic drugs (AAD), ACE inhibitors, MRA antagonist and enoxaparin. Another

pacemaker troubleshooting was performed on the fifth day of hospitalization, with no new VT episodes detected. During the clinical course, a rise in CRP was detected. A nasopharyngeal swab confirmed COVID – 19 infections on the seventh day of hospital admission. Afebrile and hemodynamically stable, the patient was transferred for further treatment at the University clinic for inflammatory diseases, where he died on the fifth day of hospitalization. **Conclusion.** COVID – 19 pneumonia has been associated with myocardial involvement and as a precipitating factor for atrial and ventricular arrhythmias. This case highlights the possibility of new- onset or first detected rhythm abnormalities being the first symptom of COVID – 19 infection in previously stable patients with coronary artery disease and left ventricular dysfunction.

Keywords: COVID–19 * schemic cardiomyopathy * Arrhythmias * Cardiac resynchronization therapy defibrillator *

AP6 RADIOLOGICAL AND CLINICAL ASPECTS OF COVID-19 PATIENTS IN POIVARDARIE REGION

G.A.Gjorgievski, V.Nikolovska Nedelkova, M. Bosevski

University Clinic of Cardiology, Skopje, N.Macedonia

Background: Coronavirus disease (COVID -19) has been associated with greater prevalence of arrhythmias and conduction system disease in patients with established cardiovascular disease (CVD). Hypoxia, cytokine storm and electrolyte abnormalities are the pathological substrate that leads to an increased risk for arrhythmias. **Case summary.** A 70 - year - old patient presented in our emergency room due to weakness and dizziness. On admission the patient was afebrile, hemodynamically stable, with an ECG finding of atrial fibrillation (AF) with ventricular rate 180/min and QRS morphology of LBBB. His past medical history included ischemic cardiomyopathy (PCI/Stenting in 2005). He was implanted with a cardiac resynchronization therapy defibrillator (CRT - D) in 2016. During the follow- up in the past four years, there were no VT episodes detected or a high AF burden. Pacemaker troubleshooting on admission day detected a high AF burden and a VT episode terminated with a CRT – D shock. Laboratory findings showed mildly elevated Troponin I (68.4ng/L) and decreased potassium levels (K=3.3mmol/L). The patient was treated with parenteral sedation, potassium supplementation, beta blockers, class III antiarrhythmic drugs (AAD), ACE inhibitors, MRA antagonist and enoxaparin. Another pacemaker troubleshooting was performed on the fifth day of hospitalization, with no new VT episodes detected. During the clinical course, a rise in CRP was detected. A nasopharyngeal swab confirmed COVID – 19 infections on the seventh day of hospital admission. Afebrile and hemodynamically stable, the patient was transferred for further treatment at the University clinic for inflammatory diseases, where he died on the fifth day of hospitalization. **Conclusion.** COVID – 19 pneumonia has been associated with myocardial involvement

and as a precipitating factor for atrial and ventricular arrhythmias. This case highlights the possibility of new- onset or first detected rhythm abnormalities being the first symptom of COVID – 19 infection in previously stable patients with coronary artery disease and left ventricular dysfunction.

Keywords: COVID–19

AP8 CHANGE IN BLOOD PRESURE DURING EXERCISE TEST, AS A PREDICTOR FOR EVENT IN ASYMPTOMATIC AORTIC STENOSIS

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Aim: Is the abnormal systolic blood presure response during exercise test (ET) predictive parametar in asymptomatic severe aortic stenosis(ASAS). **Material:** 58 ASASpts with normal left-ventricular function EF>50%, (monitored 02-36 months, median follow up period 19.5±10). Average age 59±13, men 35(60%). **Methods:**exercise test (symptom limited, modified standard Bruce protocol treadmill test). Pts age≤70. **Results:** From 58 ASASpts, ET was positive in 44 pts(76%) and negative in 14 pts(24%). 69% (40pts) had abnormal SBP response during ET(increase of SBP-less and/or equal to 20 mmHg or in case of SBP drop) and 31%(18pts) had normal SBP response at ET (SBP increase-greater than 20 mmHg).The pts with abnormal SBP response at ET, had significant: a)shorter duration of exercise test, less achieved METs, smaller cardio respiratory capacity, higher number of VES, b) smaller average values of AVA and EF and higher average values of LVEDs, IVSd, AV_Vmax., and LVM, c)higher average value of Nt-proBNP vs pts with normal SBP response during ET. The average survival time in abnormal SBP response at ET was 26,0±1,9 months (95% CI 22,3-29,7), significantly shorter vs survival time in normal SBP response at ET 33,8±1,5 months (95% CI 30,7-36,9)(p<0,029). After 36 months, only 21% of the pts with abnormal SBP response at ET will have event free survival vs. 75% of the pts with normal SBP response at ET. Patients with abnormal SBP response at ET had 4,4 times higher risk (95% CI 1,0 -19,5) for event occurrence, vs pts with normal SBP response during ET (p<0,05). **Conclusion**: Abnormal SBP response during ET, in asymptomatic severe AS pts has predictive value in revealing the pts that might experience soon rapid worsening or death.

Key words:asymptomatic aortic stenosis, exercise test, abnormal systolic blood pressure response

AP9 WHICH IS THE MOST IMPORTANT EXERCISE PARAMETER FOR ASYMPTOMATIC AORTIC STENOSIS

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Aim: Analyzing several parameters, we pay special attention on appearance of symptoms during exercise test (ET) in asymptomatic pts with severe aortic stenosis(ASAS) to find out there predictive value. **Material:** 58 ASAS pts with normal left ventricular function EF>50%, (monitored 02-36 months, median follow up period 19.5±10 months). Average age 59±13, men 35(60%). **Methods:** exercise test (symptom limited, modified standard Bruce protocol treadmill test, pts age≤70). **Results:** From 58 ASAS pts, ET was positive in 44 pts (76%) and negative in 14 pts (24%). Out of 44 pts with positive ET, symptoms (chest pain, dispnea, dizziness, presyncope/ syncope) during ET occurred in 27.3% (12 pts). We found higher percentage of pts with symptoms appearance during the ET and event appearance in the same time (p<0.01). Analysis of predictors of events (clinical, echocardiographic, Nt-proBNP and exercise test parameters included in multivariant logistic analysis) showed that only occurrence of symptoms during exercise test with OR 4.63 (95%CI 1.16-18.56) was confirmed as statistically significant predictor which increases the chances for event by 4.63 times (p=0.03). Event free survival for a median follow up period of 19±10 months (2-36) was found in less than 5% of pts with symptoms at ET and in 50% of pts without symptoms at ET. The average survival time in pts with symptoms appearance during ET 18.8±3.0 months (95%CI 12.9-24.9), was significantly shorter vs the same, in pts without symptoms appearance during ET 30.6±1.5 months (95% CI 27.7-33.5)(p < 0,001). **Conclusion:** The appearance of symptoms during exercise test has incremental value for risk stratification in asymptomatic patients with severe aortic stenosis in order to refer them to AVR in time.

Key words:asymptomatic aortic stenosis, exercise test, symptoms

AP10 DILEMMAS IN THE TREATMENT OF SEVERE AORTIC STENOSIS IN A PATIENT WITH CONCOMITANT CAROTID STENOSIS: TAVI VERSUS SURGICAL TREATMENT-CASE REPORT

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Introduction: Carotid stenosis is present in 8-13% of patients with degenerative aortic stenosis. The risk of a new postoperative stroke after surgery is 2 to 4 times higher in patients with concomitant carotid stenosis. **Objectives:** to assess the risk and cost-benefit of TAVI procedure versus surgical treatment in high-risk patients with severe aortic stenosis and concomitant carotid stenosis. **Case**

report: An 80-year-old woman with a previous history of coronary artery disease, hypertension and dyslipidemia, hospitalized for chest pain, fatigue and light-headedness. Previous hospitalization in 2006, when coronary angiography was performed with plaque findings on the left anterior descending and diagonal artery. Electrocardiogram was signs of left-ventricular hypertrophy, without ST-T changes, in sinus rythm. Echocardiographic findings in support of calcified severe aortic stenosis with mild concomitant aortic regurgitation (AVA 0.8cm2, Vmax 4.6m / s, max gradient 87mmHg, medium gradient 57mmHg), degenerative changes of mitral valvular aparatus with mild mitral regurgitation, mild functional tricuspid regurgitation, SPAP was normal. Dimensions and global left-ventricular function in normal ranges, with moderate concentric left-ventricular hypertrophy, diastolic dysfunction type I. Duplex of carotid and vertebral arteries was with finding for atherosclerotic plaques of both ACC, with calcified plaques on the bulbs, with finding of high-grade stenosis of the proximal right ACI > 70% (PSV 253cm / s) and occlusion of the mid left ACI. Re-hospitalization in October 2019, when coronarography was performed again was unchanged. Carotidography was also performed with a finding of left carotid artery occlusion and significant right carotid artery stenosis (approximately 75%). **Discussion:** in patients with severe, symptomatic aortic stenosis, with indication for replacement (surgical or TAVI procedure), the main goal is survival, improvement of symptoms, and improvement of left ventricular systolic function. The choice of intervention (surgical versus transcatheter) depends on the risk of surgery, the general condition and co morbid conditions. Surgical AVR (SAVR) is used primarily in patients at low to moderate risk and in patients with multiple CAD. All patients should be evaluated by a multidisciplinary team (so-called heart team) and the appropriateness of the surgical versus transcatheter approach should be determined. The transcatheter approach (TAVI) is used primarily in patients at high or moderate surgical risk based on the present comorbidities. TAVI procedure is not recommended in patients with a lifespan of less than 1 year. **Conclusion:** this patient can be classified in the high risk group, due to age and co morbidities, surgical treatment is contraindicated, but the TAVI procedure itself is at high risk of adverse cerebrovascular events due to significant carotid disease. Further clinical studies are needed for treatment guidelines in these patients.

Kay words: aortic stenosis, carotid stenosis, transcateter aortic intervention (TAVI, surgical aortic intervention

AP11 DILATATION OF THE PULMONARY TRUNK AND ITS BRANCHES - A CASE REPORT

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Introduction. Dilatation of the pulmonary trunk and arteries is a rare disease that is most often due to congenital weakness of the pulmonary artery wall, if pulmonary stenosis, pulmonary arerial hypertension, atrial and ventricular septal defect are excluded as causes for dilatation. **Case presentation.** A 73-year-old woman was referred with progressive dyspnea for cardiac examination. She was treated as chronic obstructive pulmonary disease (COPD), for a several years. The patient also has an arterial hypertension, which was well controlled with medication. Chest radiography taken before the cardiac examination showed a dilated pulmonary artery. The patient was reffered for echocardiography. Echocardiography showed dilatation of the pulmonary trunk with a dimension of 34 mm at the level of the valves, with pronounced dilatation after the valves, with the value of 53 mm. There was also dilatation of the branches of the pulmonary trunk. The right branch was with more pronounced dilatation (29mm) than the left one (19mm). Echocardiography ruled out other causes that could lead to dilation. A moderate pulmonary regurgitation was present. Right cavities were slightly increased, and the right ventricular function was normal. Left cavities were normal, and left ventricular function was normal. Because of the progressive dyspnea and discovered significant dilatation of the pulmonary artery CT angiography was performed. CT angiography revealed significantly dilated pulmonary trunk, mainly dilated right and less dilated left pulmonary artery, the same results as transthoracic echocardiography. CT angiography discovered significant right principal bronchus (RPB) compression from the right pulmonary artery (RPA) that resulted with athelectasis on the upper part of right lobus. **Conclusion.** The patient was referred to a cardiac surgeon because of the progressive dyspnea and objective findings for compression of the RPB and athelectasis of the upper part of right lobus.

Keywords: pulmonary artery dilatation, progressive dyspnea, bronchus compression, athelectasis

AP12 ACUTE HEART FAILURE IN PATIENTS WITH INFECTIVE ENDOCARDITIS

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Background: Infective endocarditis is an infection of the endocardial heart surface able to produce a wide variety of systemic symptoms. Our aim is to highlight the possibility of this disease causing acute heart failure, a state that is correlated with a high mortality rate. **Case report:** A 46 year- old man presented in our clinic, sent from the Nephrology Clinic, in a mentally altered state, with symptoms of fatigue and dyspnea, with temporal jugular vein catheter in order to perform dialysis. A bleeding from the catheter was reported. Laboratory analysis on admission showed increased degradation products (Creatinine = 1140umol/L, Urea = 35.7mmol/L), K = 8.4mmol/L, anemia (Hgb = 8.2), increased inflammatory markers (WBC = 20 19^9, CRP 346.5 mg/L). ECG on admission – atrial fibrillation (AF) with ventricular rate 120 bpm and AT 100/70mmHg. Auscultation showed signs for pulmonary wet changes. Urgent transthoracic echocardiography (TTE) was made with a finding of a large and highly mobile vegetation on the non – coronary aortic valve cusp (a native valve), that prolapsed in the left ventricle (LV) with dimension of 15 mm. Estimated ejection fraction (EF) was 56%. A severe acute aortal regurgitation was observed, and moderete mitral and tricuspid valve regurgitation was noted. Respecting the protocol of the pandemic era, a nasopharyngeal swab for SARS-CoV-2 was taken. Blood for hemoculture was collected. While preparing the patient for hemodialysis, shortly after admission, his condition deteriorated and ended up fatal. The results from swab for SARS-CoV-2 was negative, and the result from hemoculture identified Staphylococcus aureus, the most common pathogen amongst dialysis patients, as the causative organism for the endocardial damage. **Discussion:** The probable causes of death in this case is acute aortic valve regurgitation that lead to sudden excessive volume overload in an unprepared LV and acute heart failure. The pathophysiology of this condition includes a rise in left atrial pressure that leads to pulmonary oedema, as it was in this patient case. Although in the moment of TTE there was no left ventricular outflow tract (LVOT) obstruction detected, considering the size of the vegetation, its mobility and the high shear stress in LVOT, death obstruction from emobilisation is also very possible. **Conclusion:** Infective endocarditis is a life- threatening condition. Patients on hemodialysis are at greater risk of S. aureus blood stream infection and higher mortality rate then regular population. The best prevention of a fatal outcome is early detection and appropriate treatment. TTE is the most useful tool for diagnosis and management.

Keywords: endocarditis, hemodialysis, acute aortic regurgitation, embolization

E-POSTER PRESENTATION

PP6 TAKOTSUBO CARDIOMYOPATHY AND DIAGNOSIS-CASE REPORT

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Introduction: Takotsubo cardiomyopathy (TTC) is a stress-induced condition characterized by transient apical hypokinesia and is usually caused by stress-induced catecholamine release with toxic action that leads to stunning myocardium. **Methods and Results:** The patient was a 62 year old woman without any history of heart disease and she admitted with chest pain and electrocardiography (ECG) with ST segment elevation in the precordial leads and troponins suggesting acute anterior myocardial infarction (MI). Emergency coronary angiography which is performed showed no significant coronary artery disease. Echocardiography showed reduced LV ejection fraction with left ventricular apical ballooning and (LV) thrombus. Cardiac magnetic resonance imaging showed localized hypokinesia of the mid septal segments and akinesis of all segments of the apex of the left ventricle and T2 hyperintesity consistent with myocardial transmural oedema in the same area with diffuse involvement. During the hospitalization patient was treated with single antiplatelet, anticoagulation therapy, diuretics, angiotensin-converting-enzyme inhibitors (ACE inhibitors) and beta blockers for treatment of heart failure reduced Ejection fraction (HFrEF). At 2 months follow up ECG was normal with reversal of symptoms and regression of wall motion abnormalities at echocardiography. According to investigation results, a diagnosis of takotsubo syndrome (TTS) was established. **Conclusion:** Takotsubo cardiomyopathy often presents as an acute coronary syndrome with ST segment changes, as ST-segment elevation and/or T-wave inversion. Clinical presentation is characterized by acute coronary artery disease, in the absence of obstruction, verified by coronarography. Diagnostic methods are very important to make true decision of Takotsubo cardiomyopathy.

Key words: acute coronary syndrome, left ventricle dysfunction,takotsubo cardiomyopathy

PP10 DEEP VEIN THROMBOSIS AND PULMONARY EMBOLISM IN CIRRHOTIC PATIENTS – A CASE REPORT

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Background: Venous thromboembolism (VTE) in patients with hepatal lesion is an increasingly encountered problem in the daily clinical practice. Cirrhotic patients are characterized by a decreased synthesis of coagulation and anticoagulation actors. **Purpose:** Of this case report is to demonstrate autoimmune biliary cirrhotic patients, biochemical changes that lead to hypercoagulability. **Case report:** We present a clinical case of 37 -year-old woman that was hospitalized in the University Clinic of Cardiology because of symptoms of suffocation, cough and chest pain. The onset of the symptoms started one month ago and got high intensive 4 days before she was hospitalized. Patient has a history of DVT three years ago, cholecystectomy eight years ago. ECG on admission showed sinus rhythm. Laboratory findings showed increased leukocytes, hepatic enzymes, IgA , IgM and d-dimers. Low valuese of INR, protein C and S. Positive genetic mutations for cirrhosis. The echocardiography was suggestive for pulmonary embolism. Doppler ultrasound showed DVT in the left femoral communis and popliteal vein. CT angiography, phlebography and PTE scan confirmed PE. Liver biopsy confirmed cirrhosis. **Conclusion:** Cirrhotic patients are at risk for developing VTE, so their treatment is a challenge one.

Key words: Deep venous thrombosis, Cirrhosis, Thrombosis, Anticoagulation

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