

## Methylphenidate Induced Myocarditis

Recep Kurt, Hakan Güneş, Mehmet Birhan Yılmaz, Hekim Karapınar  
Cumhuriyet University School of Medicine Department of Cardiology, Sivas

Methylphenidate is a drug with central nervous stimulating action and with similar effects as amphetamines.

A 14-year-old child was diagnosed with attention-deficit hyperactivity disorder (ADHD) 3 months before admission. He was started on methylphenidate (Concerta®) 18 mg daily for a month. Six days before admission, methylphenidate dose was increased to 36 mg by the pediatric psychiatrist. Patient was admitted to our hospital suffering from sweating, palpitation, dyspnea and chest pain. There was no murmur on auscultation. ECG demonstrated tachycardia and bigeminal ventricular premature complexes. His temperature was 37.6 C°, white blood cell and hemoglobin were in normal range, creatinine kinase, creatine kinase MB fraction levels were elevated, troponin I was 6.29 IU (upper limit of normal: 0.1), cRP was 24.2 mg/l with a sedimentation of 14 mm/h. Screening for infectious pathogens, immunological markers were all negative. Thyroid function tests were normal. Echocardiography showed a left ventricular ejection fraction (EF) of 50% without segmental wall motion abnormality. Methylphenidate was discontinued following hospitalization. Coronary angiography showed normal coronary arteries. Eight days after hospitalization, creatinine kinase and troponin I levels decreased to normal levels. Recovery was achieved completely. On follow up, transthoracic echocardiography was repeated and EF was noted to be 60%. The investigation yielded tentative diagnosis of temporary drug-induced myocarditis.

Previously, Tollofsrud et al presented a case describing treated with methylphenidate 17 year old boy, who died from dilated cardiomyopathy (Tollofsrud C et al 2006). An adolescent with a normal baseline echocardiogram, who was administered up to 36 mg of methylphenidate for 3 months, was also reported in the literature to suffer from cardiac arrest with pulseless electrical activity, associated with methylphenidate (Daly MW et al). Cardiac adverse effects of methylphenidate have been shown to affect myocardial ultra-structure in rats (Henderson TA et al). Increase in adrenergic action that is believed to be cardiotoxic over time, is considered to cause cardiomyopathy. Clinicians should be aware that despite performing an exhaustive cardiac examination before methylphenidate treatment for ADHD, patients may still be under threat for a serious cardiac event. The risks and benefits of using methylphenidate and the other central nervous stimulators must be acknowledged by clinicians and shared with patients and parents.

## PP-119

## Assessment of Serum ADMA Levels and Aortic Elastic Properties in Patients With Ankylosing Spondylitis

Hasan Kaya<sup>1</sup>, Ebru Öntürk Tekbaş<sup>1</sup>, Faruk Ertas<sup>1</sup>, Ümit İnci<sup>1</sup>, Mustafa Oylumlul<sup>1</sup>, Murat Yüksel<sup>1</sup>, Mesut Aydın<sup>1</sup>, İbrahim Batmaz<sup>2</sup>, Hatice Yüksel<sup>3</sup>, Mehmet Siddik Ülgen<sup>1</sup>

<sup>1</sup>Department of Cardiology, Dicle University Faculty of Medicine, Diyarbakır,

<sup>2</sup>Department of Physical Medicine and Rehabilitation, Dicle University Faculty of Medicine, Diyarbakır, <sup>3</sup>Department of Biochemistry, Dicle University Faculty of Medicine, Diyarbakır

**Objective:** Ankylosing spondylitis (AS) is a chronic inflammatory disease which may be associated with cardiovascular complications. The aim of the study was to investigate aortic elastic properties and serum asymmetric dimethylarginine (ADMA) levels in patients with AS without any cardiac involvement.

**Materials-Methods:** Fifty-five AS patients and 30 age/gender matched healthy subjects were enrolled into this study. Fasting glucose, serum lipids, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR) and ADMA were studied. Aortic strain, distensibility and stiffness index were calculated from aortic diameters measured by transthoracic echocardiography and simultaneous blood pressure measurements.

**Results:** ESR and CRP were higher in patients group. Serum ADMA levels were also higher in AS than in controls (0.76±0.19 vs. 0.55±0.12, p<0.001). In subgroup analysis, ADMA was significantly lower in anti TNF-alfa treatment group than conventional treatment group (0.68±0.15 vs. 0.87±0.18, p<0.001). Mean aortic strain and distensibility were lower and stiffness index was higher in AS group than controls. No correlation between ADMA and aortic elastic properties was observed. In AS group, a negative significant correlation was found between duration of AS and aortic strain and distensibility.

**Conclusion:** Our study suggest that patients with AS without cardiac involvement, aortic elasticity was impaired and ADMA levels were increased, while there was no significant correlation between aortic elastic properties and ADMA levels.

	Ankilozan spondilit (n=55)	Kontrol (n=30)	P
Aort kökü (mm)	27.6 ± 2.3	27.1 ± 2.0	0.328
Aortik strain (%)	6.5 ± 2.5	8.8 ± 2.1	<0.001
Aortik distensibilite (cm <sup>2</sup> .dyn <sup>-1</sup> .10 <sup>6</sup> )	3.4 ± 1.6	4.5 ± 1.3	0.001
Aortik sertlik indeksi (β indeksi)	8.6 ± 3.7	5.4 ± 1.3	<0.001

## PP-120

## Serum 25-hydroxyvitamin D Level is Associated with Aortic Distensibility and Left Ventricle Hypertrophy in Newly Diagnosed Type 2 Diabetes Mellitus

Osman Kuloğlu<sup>1</sup>, Mustafa Gür<sup>1</sup>, Taner Şeker<sup>1</sup>, Gülhan Yüksel Kalkan<sup>1</sup>, Sinan Kırım<sup>2</sup>, Durmuş Yıldray Şahin<sup>1</sup>, Hazar Harbaloğlu<sup>1</sup>, Caner Türkoğlu<sup>1</sup>, Armağan Acele<sup>1</sup>, Zafer Elbasan<sup>1</sup>, Betül Özalın<sup>1</sup>, Murat Çaylı<sup>1</sup>

<sup>1</sup>Adana Numune Training and Research Hospital, Department of Cardiology, Adana,

<sup>2</sup>Adana Numune Training and Research Hospital, Department of Endocrinology and Metabolism, Adana

**Background:** Epidemiological studies suggested that there were an inverse association between vitamin D status with risk and presence of type 2 diabetes mellitus (DM). Although vitamin D is effective on fragmentation of elastic fibers in the aortic media, relationship between vitamin D status and elastic property of aorta (aortic distensibility) has not been investigated in diabetic patients. We aimed to evaluate the association between serum vitamin D status and aortic distensibility in patients with DM.

**Methods:** We studied 136 patients with newly diagnosed DM (mean age; 62.9±10.6 years). The patients were divided into two groups according to the serum 25-hydroxyvitamin D level (Vitamin D deficiency group <20 ng/ml (n=80) and vitamin D sufficient group ≥20 ng/ml (n=56)). Serum 25-hydroxyvitamin D was measured using a direct competitive chemiluminescent immunoassay. Aortic distensibility was calculated from the echocardiographically derived ascending aorta diameters and hemodynamic pressure measurements. Left ventricle mass index (LVMI) was determined according to Devereux formula.

**Results:** The lowest aortic distensibility values and highest hs-CRP and LVMI values were observed in vitamin D deficiency group compared with vitamin D sufficient group (p<0.05 for all) (Table). Multiple linear regression analysis showed that vitamin D level was independently associated with LVMI (β=-0.259, p=0.001), aortic distensibility (β=0.369, p<0.001), hs-CRP (β=-0.220, p=0.002) and body mass index (β=-0.167, p=0.015) in patients with DM.

**Conclusions:** In diabetic patients, serum 25-hydroxyvitamin D level was independently associated with aortic distensibility. Vitamin D may play a role on pathogenesis of impaired elastic properties of aorta in type 2 DM.

**Table. Comparison of Baseline, Laboratory and Echocardiographic Findings Between the Groups**

Variables	Vitamin D deficiency Group (n=80)	Vitamin D sufficient Group (n=56)	P value
Age (years)	59.3±7.5	58.4±7.9	0.493
Hs-CRP (mg/dl)	1.11±0.73	0.65±0.34	<0.001
LVMI (g/m <sup>2</sup> )	123.1±40.0	99.3±23.0	<0.001
Aortic Distensibility (cm <sup>2</sup> dyn <sup>-1</sup> x10 <sup>-6</sup> )	2.67±1.49	3.41±1.44	0.005

Hs-CRP; high sensitive C reactive protein, LVMI; left ventricular mass index

## PP-121

## Comparison of Aortic Diameters of Aviators

Suleyman Metin<sup>1</sup>, Tolga Cakmak<sup>1</sup>, Cengiz Öztürk<sup>2</sup>

<sup>1</sup>Gulhane Military Medical Academy, Aerospace Medicine, Eskişehir, <sup>2</sup>Eskişehir Military Hospital, Cardiology and Aeromedical Centre, Eskişehir

**Introduction:** Flight stresses encountered during flight may have some unfavorable effects on human physiology. Repeated exposure to acceleration (+Gz) forces may influence various cardiac parameters by causing changes in cardiac preload and afterload. We aimed to compare the aortic diameters (AD) of jet pilots who are exposed to acceleration forces with other pilots' and non-pilot aircrew's AD in this study.

**Material-Methods:** Pilots applied for periodic medical examinations to our center were included in this study and were divided into 3 groups: 48 jet pilots (ages ranging from 26 to 50) as Group A, 60 transport/helicopter pilots (ages ranging from 25 to 47) as Group B, 46 non-pilot (age ranges from 25 to 47) as control group. After obtaining their medical history, all aviators underwent a complete physical examination, chest X-ray, ECG, transthoracic echocardiography (TTE), CBC and biochemical blood tests. M-Mode echocardiographic measurements of ascending AD 3 cm above aortic valve and left atrium diameter were taken. Arterial blood pressures and retrospective data obtained by TTE were analyzed. Aviators with any comorbid cardiovascular disease were excluded. Statistical analyses were performed by using Kruskal Wallis test and Mann-Whitney U tests. P values less than 0.008 were considered as significant.

**Results:** The comparison results of age, arterial blood pressure, diameters of ascending aorta and bulbus aorta, ratio of ascending AD to bulbus AD and left atrial diameter of the aviators' are shown in Table-1,2. Transport/helicopter pilots' mean age was significantly lower than jet pilots'. Transport/helicopter pilots' ascending AD was significantly lower than control group. Other findings did not reveal any statistical difference.