Methylphenidate Induced Myocarditis

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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, Tofolofsdur et al presented a case describing treated with methylphenidate 17 year old boy, who died from dilated cardiomyopathy (Tolofofsud 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-118
Assessment of Serum ADMA Levels and Aortic Elastic Properties in Patients With Ankylosing Spondylitis
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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 transesophageal 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 of DM patients, serum ADMA levels were 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. In controls, no significant correlation was observed 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.

PP-119
Comparison of Aortic Diameters of Aviators
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Introduction: Flight stresses encountered during flight may have some unfavorable effects on human physiology. Repeated exposure to acceleration (+Gz) forces may have some unfavorable effects on human physiology. Repeated exposure to acceleration (+Gz) forces may have some unfavorable effects on human physiology. Repeated exposure to acceleration (+Gz) forces may have some unfavorable effects on human physiology. Repeated exposure to acceleration (+Gz) forces may have some unfavorable effects on human physiology.

Material-Methods: Pilots applied for periodic medical examinations to our center were studied 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. Mmode 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. 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.

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

<table>
<thead>
<tr>
<th>Variables</th>
<th>Vitamin D Deficiency Group (n=80)</th>
<th>Vitamin D Sufficicent Group (n=56)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>59.3±7.5</td>
<td>58.4±7.9</td>
<td>0.493</td>
</tr>
<tr>
<td>Hs-CRP (mg/dl)</td>
<td>1.11±0.73</td>
<td>0.65±0.34</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>LVM (g/m2)</td>
<td>123.1±40.0</td>
<td>99.3±23.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Aortic Distensibility (cm/m dyn/cm^2 x 10^-6)</td>
<td>2.67±1.49</td>
<td>3.41±1.44</td>
<td>0.005</td>
</tr>
<tr>
<td>Hs-CRP; high sensitive C reactive protein, LVM; left ventricular mass index</td>
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