Wolf-Parkinson-White Syndrome in a Division I Collegiate Rower
Emily Diniz, L. Huston PhD, D. Dinapoli ATC, T. Botto PhD, ATC

Background: Subject is a 22 YO female Division I collegiate rower with 3 separate episodes of palpitations, occurring between March 2009 and April 2010. Athlete initially experienced a feeling of her heart racing in March 2009; she did not seek medical attention at this time because she had been suffering from a fever and upper respiratory infection which she attributed her to. On February 13, 2010, athlete once again had an elevated heart rate to the 180s for about 2 min when cooling down after exercise; athlete had an upper respiratory infection at this time as well. Following episode, athlete was seen at college’s medical clinic, where an EKG was done and interpreted as normal; at this time, it was thought the patient’s symptoms were due to illness, an echocardiogram was ordered for further evaluation. The athlete had a third episode around April 10, 2010, when she felt her heart racing for 1 ½ minutes while rowing. All palpitations self-resolved, there was no lightheadedness, dizziness, chest pain, shortness of breath or syncope associated with the palpitations. Differential Diagnosis: Cardiac Arrhythmia (EKG done to evaluate for this). Cardiomyopathy (Echo done for further eval). Anxiety. Stress. Medication-Induced (common side effect of over-the-counter cold medications such as Sudafed/pseudoephedrine). Hyperthyroidism (Thyroid Function Tests done for further eval).

Treatment: EKG done 2/13/10 was initially interpreted as normal, but upon further review was found to have a minor intraventricular conduction delay (an increase in the time it takes for the transmission of the cardiac electrical impulse between the 2 ventricles of the heart), manifested by a QRS duration of about 100 ms (normal duration ranges from 80-120 ms, but above 100ms may be abnormal); furthermore, there were subtle intermittent pre-excitation complexes in some parts of the EKG, indicating that there may have been an accessory tract in the cardiac conduction system. These findings put together suggested the diagnosis of Wolf-Parkinson-White with a left lateral bypass track. It is likely that the athlete has a macro reentrant AV tachycardia or possibly AV nodal reentrant tachycardia, which caused her palpitations. The athlete had an echocardiogram done on March 11, 2010 that revealed a prominent right ventricle, which can occur in highly-trained competitive athletes and is not associated with WPW. After diagnosis, athlete underwent an electrophysiologic study to define the conduction and location of the bypass track; athlete also had an ablation done to eliminate accessory conduction pathway and therefore the arrhythmia. Uniqueness: The prevalence of WPW in the United States is extremely low, affecting just 0.10 % of the population, or 1 in 1,000 individuals. Out of this population, 60-70% of sufferers are male along with a high incidence of the disease in the Chinese population, which is responsible for approx 70% of heart arrhythmias. The disease is diagnosed with evidence of an ECG. Sufferers often go through their entire life without being diagnosed due to fact that sudden death occurs without ever presenting significant signs and symptoms that warrant an ECG. Conclusions: The athlete’s history of palpitations dates back to 2009, but was contributed to the competitive nature of the sport. Athlete received ablation to eliminate recurring arrhythmias and is doing better. Carotid sinus massage and Valsalva maneuvers were demonstrated to the athlete in the event of a recurrence. In the event of an ensuing recurrence, the athlete must seek immediate medical attention at an emergency room where she can be readily treated with adenosine. Word Count: 589