Abnormal Heart Rhythm in Collegiate Female Basketball Player

Background: A 21-year-old female basketball guard presented with an unstable heart rhythm that was identified after volunteering in an exercise physiology experimental study. Physical examination identified a slight pause in between heartbeats. The patient stated that this occurred regularly, but did not report it staff. She was subsequently removed from participation and referred to campus health cardiac conditions and the pre-participation physical examination performed by her primary care physician did not reveal any cardiac abnormalities. Differential Diagnosis: congenital heart defect (atrial/ventricular septal defect), heart muscle condition (myocarditis, cardiomyopathy), heart murmur (mitral valve prolapse/regurgitation/stenosis, aortic stenosis/sclerosis/regurgitation), Arrhythmia (Supraventricular tachycardia, proxysmal supraventricular tachycardia, sinus tachycardia, bundle-branch block, atrial fibrillation). Treatment: After the initial consultation with the primary care physician, she was referred to a cardiologist. The cardiologist ordered a 24-hour Holter test which indicated a heart rate of 38-126 bpm with an average of 65 bpm. Also, the 24-hour Holter test revealed a 1st and 2nd atrioventricular block, a disruption of nerve conduction in the heart that resulted in pauses, as well as 341 isolated premature ventricular contractions, which were asymptomatic and occurred mostly during sleep. Furthermore, the 24-hour Holter test revealed 5 episodes of tachycardia, 33 episodes of bradycardia, and 130 pauses greater than 2 seconds, with the longest pause being 2.2 seconds. Further diagnostic testing included an electrocardiogram to evaluate the electrical activity and an echocardiogram to evaluate the ventricles and valve functions. The electrocardiogram was within normal limits; however, the echocardiogram revealed minor mitral valve regurgitation with normal mitral valve appearance, trace tricuspid valve regurgitation with normal appearance, and trace pulmonic valve regurgitation with normal appearance. Upon completion of diagnostic testing, the cardiologist diagnosed the condition as 1st and 2nd atrioventricular block with mild mitral valve regurgitation. After discussing the diagnoses, the patient was not prescribed medication and was subsequently cleared for unrestricted activity pending careful monitoring by the athletic trainer. Uniqueness: Cardiac conditions are unique in collegiate athletes and can jeopardize and life. Despite being diagnosed with 1st and 2nd atrioventricular block with mild mitral valve regurgitation, the patient was able to participate for an entire season. This case is also unique because she did not present with significant symptoms during the season, did not notify any medical professionals when she noticed any abnormal heart rhythms, and was cleared for unrestricted activity pending careful monitoring by the athletic trainer. Conclusion: If a cardiac condition is present, it will most often be found during the pre-participation screening process. In this instance however, the condition was not identified during the pre-participation screening and the athlete participated without identification of the condition. Although many medical organizations do not support advanced cardiovascular screening for athletic participation, more thorough cardiac screenings may be necessary for athletic trainers to adequately identify and prevent sudden cardiac pathologies that may arise. Advanced cardiovascular screenings could be performed during pre-participation screenings to ensure safe participation. Additionally, athletic participants should be educated about the warning signs and symptoms of cardiovascular conditions so that they may feel comfortable reporting them to their athletic trainer or other appropriate health care providers. As such, this case demonstrates that athletic trainers will have exposure to patients suffering from cardiovascular conditions and should be able to identify, educate, and monitor participants with cardiac symptoms which may include sweating, pallor, palpitations, anxiety, exertional or non-exertional chest pain, dizziness, nausea, dyspnea, hypertension, hypotension, epigastric pain, as well as being asymptomatic. Word Count: 584