WOLFF-PARKINSON-WHITE PATTERN IN ASYMPTOMATIC UNITED STATES AIR FORCE AVIATORS: ARE THEY SAFE TO FLY?

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Background: Wolff-Parkinson-White (WPW) pattern is the abnormal electrocardiographic pattern resulting from the fusion of activation from the normal AV node/His-Purkinje system and one or more AV accessory pathways. The reported prevalence is 0.13 to 0.25 percent in the general population. Asymptomatic WPW pattern risks include sudden cardiac death (SCD), sustained supraventricular tachycardia (SVT), or other dysrhythmia which may affect the safety of flight or aviator’s health through sudden incapacitation. Previous studies reported up to 30% of patients with WPW pattern develop symptoms or new dysrhythmias over a 10 year period. The purpose of this study was to identify WPW pattern prevalence among current and past US Air Force aviators and identify new dysrhythmia patterns and possible contributing factors.

Methods: The USAF ECG library includes 1.2 million cardiac studies collected over 60 years and contained 1,925 ECGs with WPW pattern in 729 patients which were analyzed.

Results: The primary endpoint was dysrhythmia, ablation, or sudden cardiac death; secondary endpoints included rates of death from any cause, coronary artery disease, and correlation to physical fitness scores, BMI, blood pressure, age, LDL, HDL, total cholesterol, tobacco and alcohol use. There were 729 unique patients with WPW pattern, average age 34.8yrs (range 19-61 yrs) with 20.2 years of follow-up. The primary outcome was seen in 85 patients (11.6%), SVT developed in 70 (9.6%), SCD occurred in 2 (0.27%), with 101 EP studies performed and 66 ablations of which 2 had recurrent WPW pattern at follow-up. Secondary endpoint analysis is ongoing and should be complete by March 2015.

Conclusion: Preliminary results in this study demonstrate a higher than expected prevalence of WPW pattern at 0.26% but lower than expected rates of SVT at 0.5% per year and SCD rate at 0.013% per year. This data suggests long-term clinical stability in asymptomatic adults with WPW pattern.