**Reply: How Often Does Athletes’ Sudden Cardiac Death Occur Outside the Context of Exertion?**

**Comment on: Etiology of Sudden Death in Sports Insights From a United Kingdom Regional Registry (Finocchiaro et al. JACC 2016)**

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No conflict of interest

Letter to the Editor – JACC

Word count: 487

We are grateful to Dr. Karam and colleagues for their interest in our paper. Their letter focuses on the circumstances of sudden cardiac death (SCD) in our athletes. Previous reports suggest over 80% of SCDs in athlete occur during or immediately after exercise. In contrast we observed that a significant proportion (40%) of our athletes that died at rest and remote from the athletic arena (1). The authors suggest that since our study was an on autopsy based series of SCDs, it did not account for potentially aborted SCDs following advanced cardiopulmonary resuscitation efforts in sporting venues.

We fully appreciate that a study based on post-mortem results will intrinsically select out patients who may have survived if an automated cardioverter defibrillator (AED) had been applied promptly as could be the case in sporting arenas. However, previous studies SCD in athletes, including the two cited by the authors also based their conclusions on an autopsy series(2,3).

Although AEDs may be life-saving for SCA, especially in the setting of coronary artery disease, success rates in young sporting individuals with cardiomyopathy are relatively poor(4), indicating that the adrenergic and metabolic stresses of exercise hamper resuscitation attempts. Indeed, we observed that a diagnosis of arrhythmogenic right ventricular cardiomyopathy was associated with a 6 fold increase in the risk of SCD during sport. In contrast, most deaths from sudden arrhythmic death syndromes occur at rest including sleep(5). Therefore, complementary strategies such as early identification with pre-participation screening with ECG may be useful in detecting those athletes who are more likely to die (and less likely to be resuscitated) during sport as as well as primary arrhythmia syndromes that often cause death at home where an AED may not become available for several minutes. In line with the authors’ comment it is certainly possible that some deaths were prevented during sport and fortunately did not come to attention of this autopsy study. A systematic registry of all SCAs in young sporting individuals is essential to clarify the precise impact of the various methods of preventing SCD in sport.

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