# Traumatic Injury and Atrial Fibrillation Among Deployed Service Members

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# Abstract

Introduction. Atrial Fibrillation and Atrial Flutter (AF/AFL), the most common atrial arrhythmias, have never been examined in combat casualties. In this study, we investigated the impact of traumatic injury on AF/AFL among service members with deployment history. Methods. Sampled from the Department of Defense (DoD) Trauma Registry (n=10,000), each injured patient in this retrospective cohort study was matched with a non-injured service member drawn from the Veterans Affairs/DoD Identity Repository. The primary outcome was AF/AFL diagnosis identified using ICD-9-CM and ICD-10-CM codes. Competing risk regressions based on Fine and Gray subdistribution hazards model with were utilized to assess the association between injury and AF/AFL. Results. There were 130 reported AF/AFL cases, 90 of whom were injured and 40 were non-injured. The estimated cumulative incidence rates of AF/AFL for injured was higher compared to non-injured patients (HR = 2.04; 95% CI = 1.44, 2.87). After adjustment demographics and tobacco use, the association did not appreciably decrease (HR = 1.90; 95% CI = 1.23, 2.93). Additional adjustment for obesity, hypertension, diabetes, and vascular disorders, the association between injury and AF/AFL was no longer statistically significant (HR: 1.51; 95% CI = 0.99, 2.52). Conclusion. Higher AF/AFL incidence rate was observed among deployed service members with combat injury compared to servicemembers without injury. The association did not remain significant after adjustment for cardiovascular-related covariates. These findings highlight the need for combat casualties surveillance to further understand the AF/AFL risk within the military population and to elucidate the potential underlying pathophysiologic mechanisms.

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