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REPLY: Electrical Weapons and Electrophysiology



We appreciate the kind words of Dr. Kroll and colleagues regarding our case report highlighting the circumstances under which implantable cardioverter-defibrillator (ICD) shock may result from conducted energy weapon (CEW) discharge, such as the TASER device (Axon Enterprise, Inc., Scottsdale, Arizona) (1). Our expertise, and the focus of our report, is in cardiac electrophysiology. Thus, our report focused on the technical aspects of ICD tachyarrhythmia detection algorithms and the circumstances that would lead to inappropriate ICD therapy delivery.

Although the less-lethal nature of CEW use is well accepted, there remains debate within the scientific community regarding the degree and nature of injury that may result from CEW discharge. We appreciate the perspective of Dr. Kroll and colleagues, who as members of the corporate, scientific, and medical advisory boards of Axon Enterprise, Inc., the manufacturer of TASER brand devices, attest to the relative safety of these devices in their letter to the editor and prior responses to reports of CEW-related injury. Speaking as physicians and citizens, we are concerned that the letter from Dr. Kroll and colleagues may downplay the important public health issues addressed in the editorial (2).

CEW use can directly result in death through cardiac arrest. A training bulletin issued by the manufacturer of the Taser device acknowledges that the risk of sudden cardiac arrest related to Taser discharge is not zero but, rather, “extremely low” (3). The reduction in power delivery in more recent models is acknowledged by the manufacturer to have a “significantly improved safety margin” (4). Furthermore, there is evidence that, in addition to being used to avoid lethal force, many U.S. police agencies deploy CEWs more routinely to subdue unarmed, noncompliant, or disturbed individuals who do not pose a serious danger to themselves or others. (5) Reassurance that the CEW death rate is low disregards the potential harms that may result from CEW discharge (4,6). A full appreciation of device risks and benefits is, therefore, made difficult or impossible.

ALARA (as low as reasonably achievable) is a concept embraced within the cardiology community

regarding medical radiation use. Although the risk of radiation exposure related to medical imaging is “extremely low,” it is not zero. Because the benefits of this radiation are clear, we aim to minimize harm while optimizing benefit. Similarly, we believe that our case report contributes to the body of evidence suggesting that although there is a role for CEW use in law enforcement, its use should be ALARA.

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the *JACC: Case Reports* author instructions page.

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