







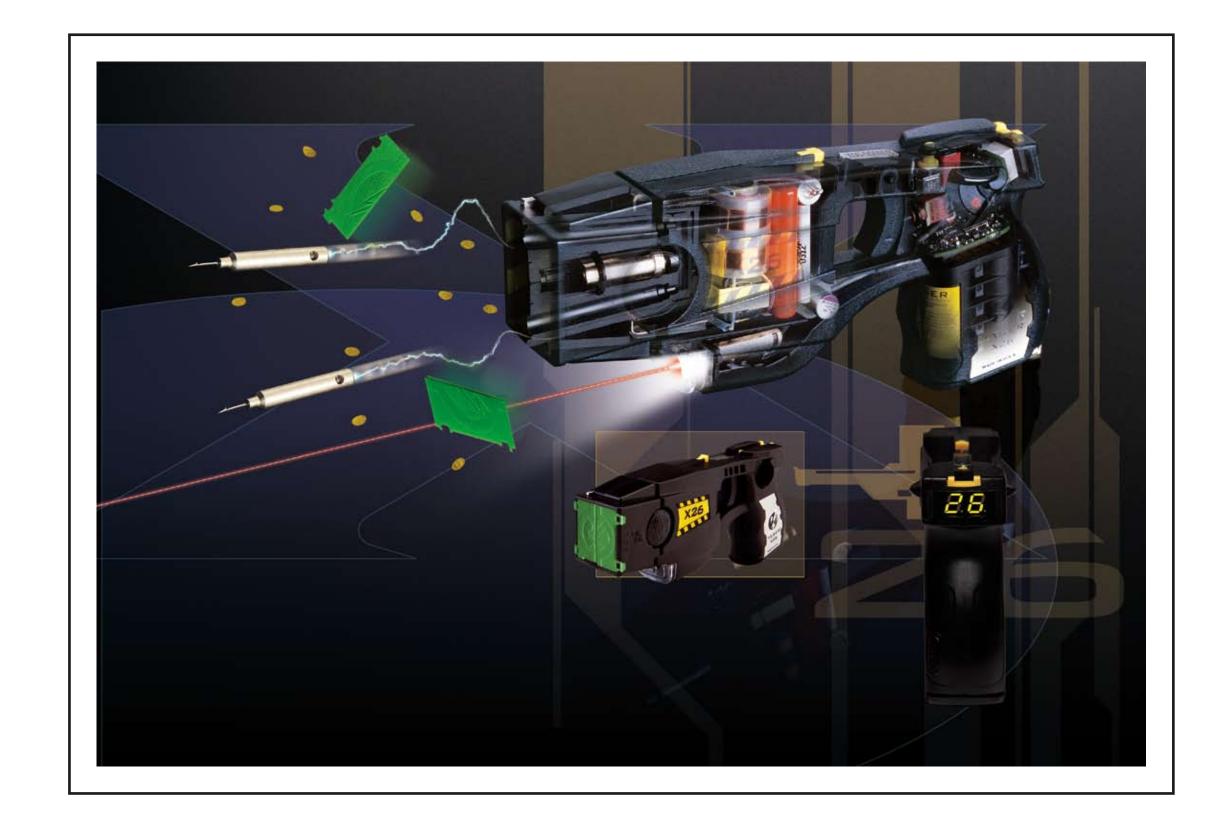
Echocardiographic Evaluation of Human Transcutaneous TASER® Application Along the Cardiac Axis

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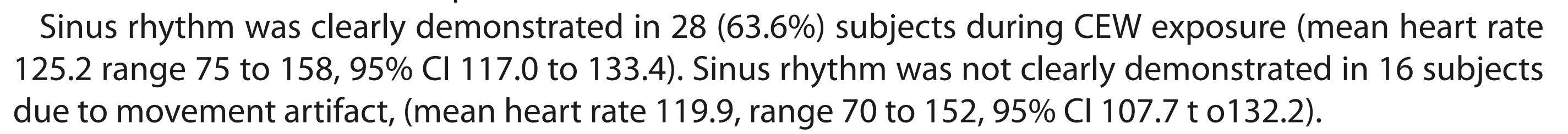
INTRODUCTION:

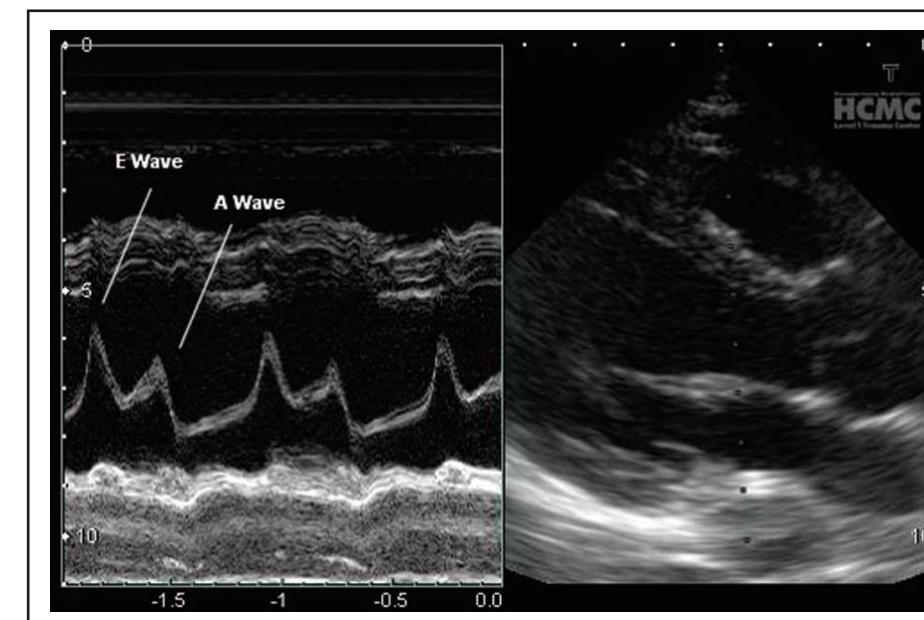
TASER® Electronic Control Devices (ECDs) are used by law enforcement to subdue or repel aggressive persons. Some deaths temporally proximate to their use have occurred. There is speculation that these devices can cause dangerous cardiac rhythms. Some animal model research supports this hypothesis and have recorded supposed cardiac capture rates of 300 beats per minute. We conducted this study to recreate the animal research conditions in humans to examine this possibility.

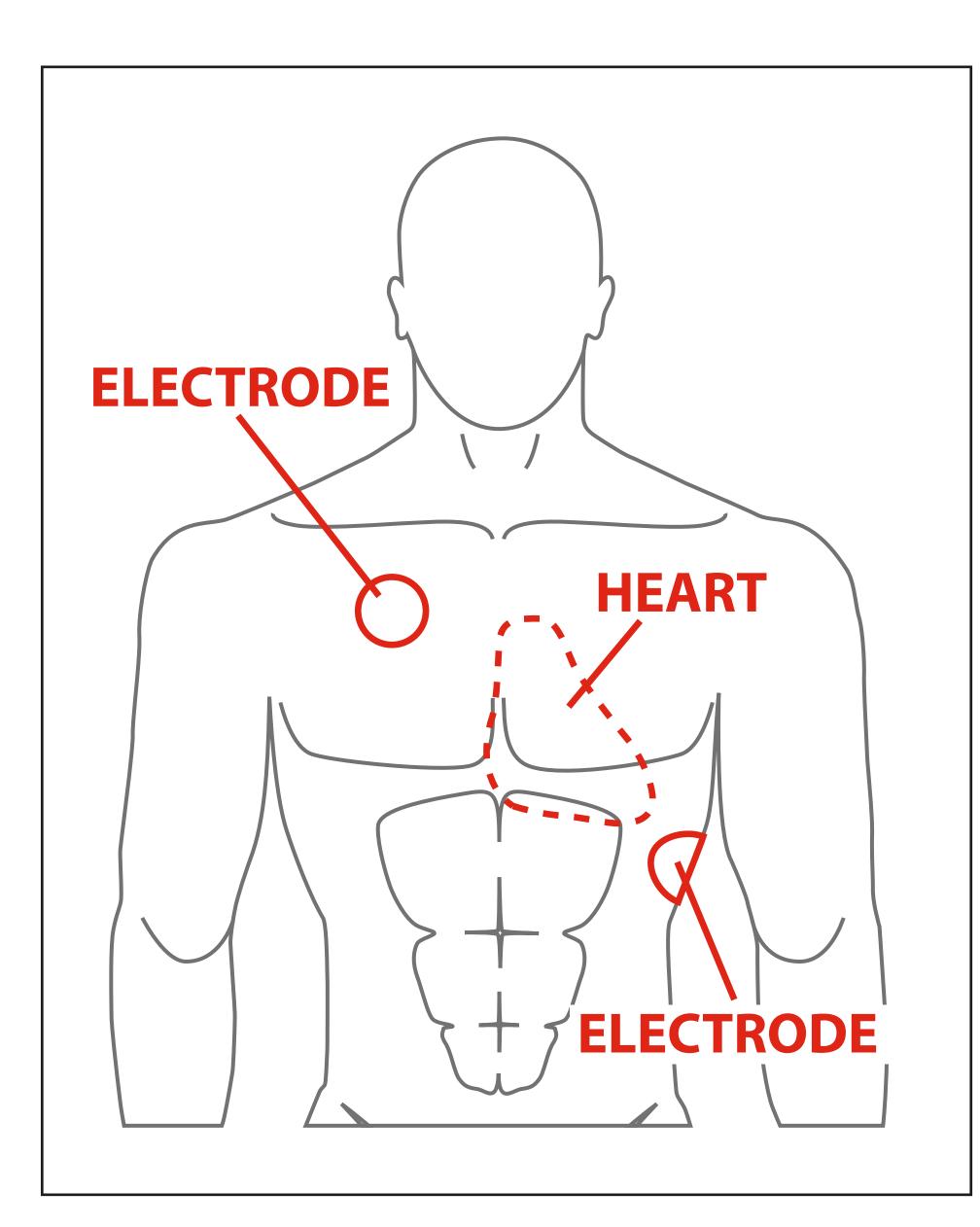


RESULTS:

A total of 44 subjects were enrolled. There were no adverse events reported. The mean HR prior to starting the event was 105.6 (range 62 to 146, 95% CI 91.2 to 112.1). During the CEW exposure, the mean HR was 123.3 (range 70 to 158, 95% CI 116.8 to 129.9) and a mean of 93.9 (range 55 to 121, 95% CI 68.8 to 98.9) at 1 minute after CEW exposure.







METHODS:

This was a prospective, non-blinded study. Adult human volunteers underwent limited echocardiography before, during and after a 15 second TASER X26 ECD application with pre-placed thoracic electrodes. The electrodes were placed in a cardiac axis position at the upper left or right sternal border and the estimated cardiac apex.

Ultrasound images were analyzed using M-mode through the anterior leaflet of the mitral valve for evidence of arrhythmia by a trained ultrasonographic emergency physician. Heart rate and the presence of sinus rhythm were determined. Data were analyzed using descriptive statistics.



CONCLUSIONS:

We were unable to reproduce the concerning tachycardia in humans that some researchers in this subject area have found using animal models.

A 15 second CEW application on human volunteers did not demonstrate any evidence of a dangerous arrhythmia.