endpoint was development of a positive troponin I (> 0.2 ng/ml). Descriptive statistics were used, calculated using a computerized statistics program (STATA).
Results: A total of 66 subjects volunteered and underwent a Taser X-26 shock delivery. The mean duration of discharge received was 4.36 seconds, range 1.2-5 seconds. All subjects had a blood draw 6 hours after receiving the shock. Troponin I values for all subjects were <0.2 ng/ml, with a positive assay defined as >0.2 ng/ml. (95% CI = 0 to 0.054).
Conclusions: Though limited by short shock duration, human volunteers exposed to a single shock from the Taser did not develop an abnormal serum troponin I level 6 hours after shock, suggesting that there was no myocardial necrosis.

257 Does the Taser Cause Electrical Changes in Twelve Lead ECG Monitoring of Human Subjects

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Objectives: EMS providers are often the first to medically manage persons subjected to a Taser activation. As the Taser uses high-voltage electricity to incapacitate subjects, we sought to evaluate cardiac rhythm changes during a Taser activation.
Methods: This prospective study was performed on 32 healthy volunteer subjects receiving a shock from the Taser X-26. The subjects had a baseline 12 lead ECG performed immediately before and within 1 minute post Taser activation. One minute post Taser activation was considered clinically relevant as most reported deaths following Taser use occur after 1 min, and thus any electrocardiac changes, such as QT prolongation, should be captured if present. Primary endpoints included evaluation of changes in cardiac rhythm, morphology, and interval duration. Descriptive statistics and paired Student's t-test comparisons are reported ($p < 0.05$) (SPSS).
Results: In all 32 subjects an interpretable 12 lead ECG was obtained prior to and after the Taser activation, except for one post-Taser ECG (PR interval indeterminant). The average age was 33 and BMI 26.5 kg/m^2. Overall, there was a significant increase in mean heart rate (2.4; 95% CI = 0.0 to 4.9; $p < 0.05$) and decrease PR interval (−6.5; 95% CI = −9.7 to −3.3; $p < 0.001$). When stratified by gender, the only significant change was a decrease in PR interval in men ($p < 0.01$). When stratified by BMI, a significant increase in heart rate and decreases in PR and QT intervals are noted (4.0; 95% CI = 1.3 to 6.7 for HR, −6.0; 95% CI = −11.3 to −0.7 for PR interval and -18.8; 95% CI = −33.2 to −4.3 for QT Interval) among normals. In all cases, none of the subjects had a QTc pre- or post Taser activation that exceeded 0.44 seconds. None of the statistically significant differences between ECG measures were clinically relevant.
Conclusions: There were no cardiac dysrhythmia, interval or morphology changes in human subjects who received a Taser shock on evaluation of a 12 lead ECG performed immediately before and after Taser activation.

258 TASER Discharges Capture Cardiac Rhythm in a Swine Model

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Objectives: Data from our group and from others suggest that the TASER X26 can seriously alter cardiac function in experimental animals. We hypothesized that TASER X26 discharges can greatly reduce cardiac performance.
Methods: Using an IACUC approved protocol, 13 standard pigs (22-77 kg; 6 experimentals, 5 sham and 2 paralyzed sham controls) were anesthetized with ketamine and xylazine. Experimentals were paralyzed with succinylcholine (2 mg/kg) then exposed to two 40 sec discharges from a TASER X26 (TASER Intl., Scottsdale, AZ) across the torso. Blood pressure, vital signs, troponin I, blood gases, and electrolyte levels were obtained pre-exposure and at 5, 15, 30 and 60 min and 24, 48 and 72 hrs post-discharge. EKGs and echocardiography were performed before, during, and after the discharges using a GE Logiq7 ultrasound. P-values <0.05 were considered significant.
Results: The EKG was unreadable during the discharges due to electrical interference, but echo images were not affected. During the discharges, cardiac rhythm was captured immediately at a rate of approximately 300 beats/min in all animals. This capture continued for the duration of the discharge and, in 3 cases, sinus rhythm was regained within 5 sec of discontinuing the discharge. In 2 other animals, ventricular fibrillation (VF) was seen after the discharge by echo and EKG. In 1 animal, spontaneous reversion to sinus rhythm occurred after 15 sec, and in the other VF resulted in death. Another animal showed ventricular tachycardia for <5 sec before reverting to sinus rhythm. In these 3 cases, the rhythm as seen during discharge by echo did not change when the discharge stopped. Blood chemistry values were not significantly affected in the post-discharge period. In surviving animals, heart rate was not significantly affected and hypotension was absent.
Conclusions: Given the possibility of cardiac capture with TASER discharges, cardiac monitoring should be performed on exposed subjects.

259 Cardiovascular and Metabolic Effects of the Taser on Human Subjects

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Objectives: The Taser X26 is reported to be used by over 30% of police agencies in the United States. The purpose of this study was to examine the effects of a single Taser exposure on cardiovascular (CV) and blood parameters in human subjects.