



Pathology Biology Section – 2010

G86 Investigation and Autopsy Procedures in Cases Involving Conducted Energy Devices (CEDs) in the State of Maryland

Mary G. Ripple, MD, David R. Fowler, MD, and Ling Li, MD, Office of the Chief Medical Examiner, State of Maryland, 111 Penn Street, Baltimore, MD 21201*

After attending this presentation, attendees will understand the investigation and autopsy procedures necessary in cases involving the use of CED's and the demographics of their use.

This presentation will impact the forensic community by reporting investigative and autopsy findings in a group of conducted energy device cases.

Controversy exists over the possible contribution of CED use to sudden death. CEDs are primarily used as a restraint method by law enforcement personnel on aggressive individuals. The typical scene involves an acute onset of agitated and delusional behavior in a person with mental health issues and/or who is on drugs. An attempt is made to control the uncooperative individual leading to a struggle at which some point the person becomes unresponsive. Experience at the OCME has emphasized the necessity of complete investigation and autopsy in these complex cases.

From 2004 until January 2009, the OCME autopsied 12 cases involving CEDs. The most commonly used CED in Maryland is the X26 TASER®. The TASER® was used in drive stun mode only in 2/12 (16%) cases, probe deployment only in 6/12 (50%) cases, and combination of both in 4/12 (33%) cases. In 75% of the cases, the TASER® was used more than once. The average age of the individuals was 35 years old, 92% were male, 67% were black, and 33% were white. Manner of death was ruled undetermined in 58% of the cases, homicide in 25% of the cases, and accident and suicide in 8% each of the cases. In two of the homicides, gunshot wounds were the cause of death when the X26 TASER® was ineffective. Excluding these two homicides, the accident and the suicide, the TASER® probes were deployed in seven of the eight remaining cases. The time elapsed between deployment of the TASER® and the time the individual went unresponsive was several minutes in four cases and in three cases it could not be determined with certainty. In the eight remaining cases, the cause of death was generally considered to be a combination of police restraint methods, the agitated/excited delirium state of the individual, the presence of drugs or alcohol, and heart disease when these were identified. In no case was the TASER® considered the sole cause of death. Of these cases, 75% were considered to be in an agitated/excited delirium (ED) state and 87.5% had ethanol or illicit drugs including cocaine, heroin, or phencyclidine in their systems. Of the ED cases, all were obese and most had heart disease. The non- ED cases included two thin individuals who struggled with police and both cases had either ethanol or illicit drugs in their system. The temperature was not recorded in the majority of cases. The initial cardiac rhythms recorded were also evaluated.

In June of 2008, in their interim report studying deaths following electromuscular disruption, the National Institute of Justice (NIJ) published considerations in the performance of investigation and autopsy in CED cases. The OCME has adopted these considerations and added to them. Investigation should develop a timeline of events with emphasis on when the subject went unresponsive. A complete review of past medical records and incident EMS, hospital, and police records, TASER® dataport download, types of restraint used, witness reports, and any videos or photos must be performed. Autopsy procedures should include: documentation of all injuries with both black and white and color photographs, measurement of the distance between the injuries and soft tissue injury, separate anterior and posterior neck dissections, cut downs of the body, microscopic sections of organs and injury, cardiovascular and neuropathology consultations, and a full toxicology screen.

Recommendations in this report are based on the experience at the OCME and follow those put forth by the NIJ in their interim report. These complex cases should each be evaluated on an individual basis, as the correlation of the investigation and autopsy findings is critical in order for the medical examiner to come to a determination of the cause and manner of death.

Conducted Energy Device, Investigation, Autopsy