LW3 Capital Punishment by Lethal Injection

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The goals of this presentation are to: (1) review the history of lethal injection as a form of capital punishment; (2) examine the original drugs used for this purpose; (3) identify subsequent changes in the drugs and the deficiencies they posed to the process; and, (4) summarize problems encountered with lethal injection and arguments against lethal injection posed by opponents.

This presentation will impact the forensic science community by addressing the question: Is the current method of lethal injection the best we can do?

Executions were first carried out with the guillotine, the "firing squad," and finally the electric chair and the gas chamber; however, on May 11, 1977, Oklahoma's state medical examiner, Jay Chapman, MD, proposed a new method of execution, in which an ultra-short-acting barbiturate in combination with a chemical paralytic were administered via intravenous injection. "Chapman's Protocol" was introduced into the Oklahoma legislature and was quickly adopted.

On August 29, 1977, Texas adopted the new method, switching to lethal injection from electrocution. On December 7, 1982, Texas became the first state to use lethal injection to carry out the execution of Charles Brooks, Jr. From 1977 to 2004, 37 of the 38 states employing capital punishment introduced lethal injection statutes.

The original protocol utilized sodium pentothal, a rapidly-acting "induction agent" to induce unconsciousness. This was followed by injection of pancuronium bromide, a curare-like agent that paralyzed the respiratory muscles and diaphragm. Lastly, potassium chloride, a "cardioplegic" drug used to stop the heart from beating during open-heart surgery, was injected to poison the cardiac electrical conduction system and stop the heart. On October 15, 2013, Florida was the first state to switch to midazolam, the first drug in a new three-drug protocol. On November 14, 2013, Ohio followed. The Ohio protocol, developed after the incomplete execution of Romell Broom, tried to ensure the rapid and painless onset of anesthesia by using only sodium thiopental and eliminating the use of pancuronium bromide and potassium as the second and third drugs. It also provided for a secondary fail-safe measure using intramuscular injection of midazolam (a water-soluble form of diazepam) and hydromorphone in the event intravenous administration of the sodium thiopental proved problematic

After sodium thiopental began being used in executions, Hospira, Inc., the only American company that made the drug, stopped manufacturing it due to its use in executions. The subsequent nationwide shortage of sodium thiopental led states to seek other drugs. On December 16, 2010, pentobarbital, a drug often used for animal euthanasia, was used as part of a three-drug "cocktail" for the first time during the execution of John David Duty in Oklahoma. On March 10, 2011, pentobarbital was used as a single drug in lethal injection when Johnnie Baston was executed in Ohio.

The American Medical Association argued that a doctor "should not be a participant" in executions in any professional capacity with the exception of "certifying death, provided that the condemned has been declared dead by another person" and "relieving the acute suffering of a condemned person while awaiting execution." Due to physician resistance, some states passed laws stating that participation in a lethal injection is not to be considered practicing medicine. Delaware's law read, "the administration of the required lethal substance or substances required by this section shall not be construed to be the practice of medicine…." Still, many physicians declined to participate in lethal injections, requiring poorly trained technicians to calculate doses and do the actual intravenous injections.

On April 29, 2014, Clayton Lockett died of a heart attack during a failed execution attempt at the Oklahoma State Penitentiary in McAlester, OK. Technicians could not locate a good venous access due to his prior days of dehydration and the technical inadequacies of the staff. He was administered a mixture of drugs that had not previously been used for executions in the United States and survived for 43 minutes before being pronounced dead. Lockett convulsed and spoke during the process and attempted to rise from the execution table 14 minutes into the procedure, despite having been declared unconscious. Was this technique an improvement over prior methods of lethal injection, or did it subject the recipient to more pain and suffering? Ethical and pharmacologic issues will be discussed.

Capital Punishment, Lethal Injection, Flawed Methods

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