



D17 Seeing Is BeLeeding

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After attending this presentation, attendees will understand some investigative principles that are required when investigating deaths due to exsanguination from an AV fistula used for hemodialysis. The attendees will also gain awareness of the physiology underlying the disease processes of chronic renal failure, diabetes mellitus, hypertension, and coronary artery disease and will be able to apply this knowledge to their death investigations. Some of the treatments for these diseases will be discussed as they are contributing factors for exsanguination. The types of hemodialysis access sites will also be reviewed in relation to manner of death.

This presentation will impact the forensic science community by serving as an educational tool for death investigators and augmenting investigative practices currently in place in each attendee's locale. Better investigations being performed allows for more accurate statistics to be kept, possibly preventing some of these deaths in the future.

This project was designed to assist death investigators ascertain all the necessary information on deaths due to exsanguination from hemodialysis sites. This presentation will be useful as an introduction into these disease processes, highlighting the symptoms and contributing factors that can lead to exsanguination. The reasons behind the need for investigating psychiatric history will also be explored. Many times, it is assumed that exsanguination from the AV fistula is a known

complication of hemodialysis and the manner of death is either natural or accidental. No questions are asked about suicidal ideations. The initial investigation and interviews of family members in deaths caused by exsanguination from the AV fistulas in decedents with chronic renal failure may be the most important aspects of the case. The cause and mechanism of death are rarely questionable mainly due to the quantity and pattern of arterial blood spatter present. The investigator can rule out blunt or sharp force injuries as he/she performs his/her physical assessment of the decedent during the scene examination. The manner of death requires further scene investigation as well as communication with the family and friends.

Although most of these deaths can be ruled as natural deaths after a quality investigation is performed, some of the deaths may be ruled as accidents or suicides, depending on the circumstances. It is the job of the investigator to gather the pertinent information during the investigation. Therefore, the investigator is the key to classifying these deaths properly. Since 2003, Harris County Medical Examiner's Office (HCMEO) has investigated 29 cases of exsanguination from hemodialysis sites. One incident occurred at the decedent's dialysis facility while the remainder of the incidents occurred at the decedent's residence. Of these 29 cases, 21 were ruled as natural deaths, 4 were ruled as accidental deaths, 2 were ruled as suicides, and 2 were undetermined. Of the 29 cases, 18 were scenes while the remaining 11 were hospital deaths.

With an adequate investigation, jurisdiction of some of these cases can be released with only the questionable cases requiring the medical examiner/coroner to perform an autopsy. Of the 29 cases, jurisdiction was released by HCMEO in one of the cases for the primary care physician to sign the death certificate and that took place in January 2009. Autopsies were performed in 20 of the cases. With improved investigations, HCMEO has been able to perform more external examinations on these cases. So far, six of the eight total external examinations since 2003 have been performed in 2008 and 2009 (through June) with eight autopsies from 2008 to present (June). **Exsanguination, Hemodialysis, Death Investigation**