

H123 The Role of Postmortem Computed Tomography (PMCT) in the Assessment of the Cause of Death in a Natural Disaster (Flooding): A Sicilian Experience

*Cristina Mondello, MD**, Department BIOMORF, University of Messina, Messina 98123, ITALY; *Salvatore Rocuzzo, MD**, University of Palermo - Messina, Messina 98124, ITALY; *Gennaro Baldino, MD*, Palermo 90100, ITALY; *Antonio Bottari, MD*, Department of Biomedical and Dental Sciences, Messina 98100, ITALY; *Alessio Asmundo*, University of Messina, Messina, ITALY; *Giuseppe F. Lo Re, MD*, University of Palermo, Palermo, ITALY; *Sergio Salerno*, University of Palermo, Palermo 90100, ITALY; *Fabrizio Perri, MD*, INPS, Messina 98100, ITALY; *Elvira Ventura Spagnolo, MD, PhD**, University of Palermo, Palermo 90127, ITALY

Learning Overview: After attending this presentation, attendees will understand that PMCT is a useful tool to evaluate bodily injuries occurring during a natural disaster.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by highlighting that PMCT may be used as a single investigation to assess the cause of death in selected cases.

PMCT is a tool widely used in the forensic field and its applications focus mainly on cases of non-natural death such as floods, natural disasters, or whenever a crime is suspected. Sometimes it can be preferred to traditional autopsy, especially in cases where the bodies are heavily damaged. The main advantages are the ability to provide rapid and complete results on the main parenchymal changes and identifying foreign bodies, allowing a preliminary and sometimes definitive assessment of the cause of death. Here, the contribution of the PMCT images in the assessment of the cause of death of subjects who died during two natural disasters occurring due to flooding in Sicily, Italy, is reported.

The non-contrast whole-body thin slice PMCT scan of 48 bodies was performed: 37 subjects (16 female; 17 male; 4 children) died due to flooding that occurred in Messina; 11 subjects (4 female; 4 male; 3 children) died due to flooding in Palermo. Then the external examination of each body was provided.

In 28 cases, the CT investigation revealed the presence of slush in the airways and the cause of death was determined as acute asphyxia due to airway clogging. In 17 cases, the CT images showed severe crush injuries from debris scatter and the cause of death was assessed as polytrauma (head and/or thorax and/or abdominal trauma). In three cases, some body parts were found and in only one case was it possible to determine the cause of death as airway clogging. The external examination revealed severe injuries in a subject who died during the Messina flooding; no external injuries were evaluated in subjects who died in Palermo.

This report highlights the usefulness of PMCT in a natural disaster, in which the radiographic findings can lead to a definitive cause of death, even if a complete autopsy is not performed. Moreover, the images allow better evaluation of the different density of clogging fluid, the location of the fluid, and the lung parenchymal alterations. The PMCT, in selected cases, can be considered an important tool in determining the cause of death, leaving the bodies intact and shortening the time of the investigations.

Flood, Virtopsy, Mechanical Asphyxia