E7 Mortality Among Hospitalized Injured Older Adults (HIOAs) for a Major Trauma: A Retrospective Autopsy Analysis (2000–2017)

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Learning Overview: Aging, injury, and hospitalization are a challenging triad for health care providers. In medical malpractice claims regarding HIOAs deaths, an Injury Severity Score (ISS) could be a very reliable evaluation parameter for forensic pathologists in order to establish health care workers' liability.[1]

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing useful and reliable data regarding HIOA deaths. Moreover, in such cases, when a malpractice claim occurs, death is a result of older adults' frailty, the trauma itself, as well as pre-existing medical conditions, leading to exclude health care workers' liability. This information needs to be taken into consideration in lawsuits regarding HIOA deaths.

Frailty is a leading feature in older adults and is characterized by physiological changes leading to an increased vulnerability to external stressors. A greater degree of frailty is associated with higher mortality risk and other adverse outcomes.[1] Trauma affects more than 9% of the United States population every year, and it is an important public health concern. In the United States in 2004, more than 2.9 million older adults were treated for traumatic injuries in hospital emergency departments.[2] Several studies suggested that older adults are at greater risk of fatal injury than their younger counterparts.[3,4] Furthermore, reliable data on fatal trauma is necessary for planning current and future trauma care in Europe.

This study reviewed all major trauma death autopsy databases regarding motor-vehicle crashes, cyclist investments, pedestrian casualties, falls from heights, accidental falls, aggressions, and accidents in the domestic and working place and was performed at the Department of Forensic Pathology of the University of Foggia from 2000 until 2017. Charts of all medical and forensic autopsies performed in the study were hand searched. Only cases with hospitalization previous to the death in patients older than 5 years of age were selected. The ISS is a method for numerically describing the overall severity of injury. It can be applied to those who have sustained injury to more than one area of the body as well as to those with isolated injures. An individual's ISS is determined by rating each injury with the Abbreviated Injury Scale (AIS), then adding together the squares of the highest AIS rating for each of the three most severely injured areas. The ISS correlates substantially better with mortality than does the AIS rating for the most severe injury.[5,6] All cases with ISS greater than 15 were selected in this study. Demographic data, injury mechanism, pattern and severity, physiological signs, pre-existing medical conditions, and length of stay after trauma were obtained from pre-hospital trip charts, clinical charts, and forensic and medical autopsy records. In all malpractice claims, three different medical examiner offices, blinded to each other's opinions, evaluated the relationship between health care professionals' behavior and death.

Fifty-five autopsies were selected (35 M; 20 F; mean age 73, DS 5.4). Traumatic brain injury was the cause of death in 16 cases (29%), followed by pneumonia in 8 cases (15%), and Multiorgan Distress Syndrome, pulmonary embolism, and fat embolism (all in 6 cases, 12%). The median ISS was 21. The mean length of hospitalization was 27.78 days (median 15; I Q 6.5; III Q 29.5). In 43 cases (78%) pre-existing medical conditions were present. A negative correlation between time of survival after trauma and both number of pre-existing medical conditions and severity of trauma was observed.

In the case of HIOAs, undertriage remains a serious problem.[7,8] Treatment at a trauma center has been shown to be associated with a 25% lower mortality. In this study, in 32 of 55 cases (58%) hospitalization took place in a trauma center but in both the United States and Italy, there are no geriatric trauma centers.

In all cases, a correlation between health care professionals' behavior and death was excluded.

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HIOA Deaths, Malpractice, ISS