G24 Victim Trauma as an Identification Tool in Mass Disasters

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After attending this presentation, attendees will learn that it is important to consider the victim's injuries in relation to his location at the time of a Mass Disaster. This relationship is the basis of further identification procedures.

This presentation will impact the forensic community and/or humanity by demonstrating the need to reinforce its commitment to finance full identification procedures. There is a need to employ Forensic Science officers capable of implementing a full identification program.

Ipso facto, "Mass Disasters" involve large numbers of victims. In the Medical Legal field, dealing with such disasters includes the identification of victims of trauma in a very wide variety of circumstances. In addition to enabling families of the victims to learn the fate of their loved ones, results of identification procedures are made available for use by law enforcement agencies.

The final identification of the victim is usually confirmed by his/her DNA profile, and /or by examination of the dentition of the victim after experiencing the trauma. This identification process is greatly simplified if the victim's pre-trauma identification characteristics can be located in existing database of DNA or dental records for comparison purposes.

Difficulties are encountered when no such pre-trauma records of a particular victim can be located and the identification procedure needs to start ab initio. The aim is to attempt to determine the probable identity of a particular individual by a compilation of data such as details of where the individual was found, the trauma suffered and anthropological features, [gender, age, height and race], for comparison with DNA profiles and/or dental records of known missing persons. The DNA profile of a particular individual can be determined from the DNA profiles of parents or children. The dental history of an individual obtained from dental records kept by dentists can also be used in identification. Other indications may be obtained from tattoo marks or moles and in some cases implants such as pacemakers (with serial numbers), artificial joints, and the like.

Victims may be found in collapsed buildings following natural disasters such as tidal waves, severe flooding, hurricanes or earthquakes as well as due to human action. Human action can include direct injury as well as building collapse due to defective building design or construction or terror explosions.

Accidents involving road transport, aircraft and maritime vessels can cause large numbers of victims. The injury to each victim is largely determined by his location in relation to the area of the damage caused by the disaster. Traumatic injuries inflicted on a group of individuals, who were in close proximity to one another at the time of the disaster, will cause similar pathological changes in each member of the group. Different types of injury may often be associated with different locations at the scene of the incident e.g. injuries to passengers in the rear of an aircraft are likely to be different than those in front seats which are closer to burning fuel. Consequently, careful examination of the nature of the traumatic injury may in some cases enable the investigator to establish where an individual victim had been located at the time the incident occurred and therefore narrow the possible identities to persons who were known to be in that particular locality, e.g. from passenger seating lists or lists of occupants of rooms in a hotel.

If the identities of individual members of the group are known from records compiled before the disaster, the DNA profile comparison search is limited to a much smaller number of individuals and the identities of individual members of the group can be established more readily. (e.g. aircraft passenger lists or wedding invitation lists). The identification procedure is obviously much more complex when diverse crowds in public places are involved.

Injuries can be due to crushing, fire, gas or smoke inhalation, blast effects in explosions, penetration of primary or secondary missiles, laceration of soft tissue and the effects of bio-chemical agents. Examples will be shown to illustrate the various injuries and their relevance.

Victim, Location, Identification

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