Mass Casualty Management

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Mass casualty may be defined as any large number of casualties produced in a relatively short period of time usually as a result of a single incident like, building collapse, earthquake, tsunami, flood, cyclone, neuclear reactor accident that overwhelms local logistic and treatment facilities. Nov15, 2007 Cyclone Sidr struck the south-west coast of Bangladesh with winds upto 240 km/hr. About 3400 died and 55,000 people sustained physical injuries in it.In Haiti earthquake 2010,an estimated 250,000 people died and at least 300,000 were injured[1]. Nepal earthquake 2015 left 9000 dead and about 22,000 casualties.

Management of mass casualties begins at the site of incident. In case of a mass casualty incident (MCI), we should apply the abbreviation START which means simple triage and rapid treatment. Triage is the process of sorting casualties to determine the priority of treatment, transport and appropriate hospital destination based on the severity of their conditions. After rapid primary survey and resuscitation of vital functions, we should prioritize the casualties by using triage tags. Four colour coded tags are IDME where I stand for immediate (red), D for delayed (yellow), M for minimal (green) and E for expectant (black/blue).

If the respiration is resumed after correcting the position of the head and clearing the airway, the case is categorized as immediate (red). It should be treated at once or within one hour (i.e. within golden hour).If the injury is serious but not life threatening, the case is tagged yellow. Treatment of this case can be delayed for hours. If the patient can move without help (i.e. walking wounded patient), the case is tagged green. If there is no respiration or no hope of survival, it is tagged black. The patient's tagged red should be transported to the nearby hospital and treated first.

Another way of rapid primary evaluation is RPM where R stands for respiration, P stands for perfusion and M stands for mental status. If respiration is rapid, heart rate is high, B.P. is low, radial pulse is absent or imperceptible, capillary filling time is >2 sec and there is altered mental status, the case is treated as immediate.

All actions must be urgent and from all fronts. Bleeding from limb injuries should be controlled by pressure dressings, elevation, clamps or tourniquet. Suctioning chest injury should be closed by adhesive tape; airway is made patent by jaw thrust, using airway tube and removing the denture or foreign body from the mouth. Infusion is started and fractured limb should be splinted. Patients should be transported to nearby hospital for appropriate measures.

In the last decade more than 2.6 billion people have become casualties of natural disasters acute events such as earthquakes, landslides, cyclones and floods can result in significant numbers of casualties[3]. An estimated, 1.2 million people are killed and as many as 50 million are injured each year in road traffic accidents of which a large number are from mass casualty incidents[2]. Projections indicate that these figures will increase by about 65% over the next 20 years. Conflict and civil unrest may also result in many trauma cases.

Mass casualties following natural disasters and major incidents are characterized by a quantity, severity, and diversity of injuries that can rapidly overwhelm the ability of local medical resources. Casualties associated with natural disasters are usually due to blunt trauma, crush injuries, drowning, and mental health issues[4].

Most people affected by natural disasters, technological and societal hazards lead to large numbers of non-fatal casualties. Many deaths and long term consequences from casualties are

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preventable with timely and appropriate intervention.

The medical response to a mass casualty event operates at two broad locations: on the site of incidence and at the casualty department. Rapid pre-hospital evaluation and triage are essential to determine treatment and transport priorities to save lives and optimise resources. A standardized and well-rehearsed incident management system together with standard operating procedures are paramount for linking site operations to hospital based care during an actual disaster.

Multidisciplinary actions that are needed to reduce the risk of mass casualty situations include[5]:

- Safe construction and strict adherence to housing plan and road safety measures.
- Promotion of awareness for early response to warnings and construction of shelter centres to protect from extreme events e.g. earthquakes, floods, tsunami.
- Maintaining civil order to reduce injuries and trauma that arise from inter-communal violence.
- Enhancing early warning systems, first aid, search and rescue are first line of community responses to mass casualty events.
- Early deployment of fire and ambulance services for safe evaluation.
- Development of standardized and well-rehearsed incident management system.
- Strengthening pre-hospital and hospital treatment systems to ensure the best outcome.
- Arrangement of essential surgery and emergency care facilities at the local level can ensure immediate life-saving treatment.
- Maintenance of good communication to minimize disruptions to social support measures and prevent further injuries.
- Rapid and timely deployment of trained personnel to the site of incidence.
- Follow up for recovery, rehabilitation and supply of wheelchairs, walking aids and prostheses to people with disabilities.

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