Earthquake: Importance Of Emergency Preparedness Team

Nurses serve a critical role in emergency preparedness at the local, state, and national levels through planning, community and consumer education, and direct care provided during disasters. An earthquake is a shaking of the Earth, specific region not the whole Earth, caused by the stress placed on the Earth's crust from the shifting of the tectonic plates. This shaking may cause a crack called faults. (NASA, 2019) Individuals experiencing the earthquake may become injured by falling objects, being trapped and getting crushed, being at the beach and getting hit by huge waves, or falling into the fault. It is the responsibility of the emergency response team to aid and care during an earthquake crisis. Nurses and other health care providers should collaborate with of?cials involved at all levels of disaster preparedness. They should also work to educate families about how to plan for and stay safe during disasters.

Introduction

In an earthquake, debris and other falling objects may potentially cause a variety of injuries on victims. The best way to survive an earthquake is by being prepared. Community prepares by stocking their home with water, food, flashlights, batteries, first aid kit, scheduled medications and antipyretics/anti-inflammatory medications, ropes, scissors, candles, blankets, etc. (CDC, 2005) Community should also provide lessons of actions to be taken during an earthquake, such as getting low and getting under a hard object while protecting neck and head. As the Center for Disease Control and Prevention states, one key rule is to stay in the current location during an earthquake, either outdoors or indoors. This lowers the risk of being knocked down by a wall, tree, door, or building while changing location from outdoors to indoors and vice versa. (2005) An earthquake can cause of variety of injuries such as a fracture, drowning, crush injuries from being trapped, stabs from the sharp broken object, burns, electrical shocks and many more. As such, the registered nurse must be prepared to render aid and emergency care, often for multiple types of injuries.

Plan of Care

During an earthquake the emergency preparedness team uses the triage system, implementing medical care in three categories: emergent, urgent, and nonurgent. In this system, emergent patients have the highest priority, urgent patients have serious health problems but not immediately life-threatening ones, and non-urgent patients have occasional illnesses. The triage system bypass moves incoming patients directly to a bed, if open beds are available in the department. This eliminates the patient waiting and the receiving nurse performs the initial assessment and vital signs. The triage nurse works with the physician. Team triage can move patients to diagnostics and possibly discharge without full admission to the emergency department (ED). The emergency preparedness team needs to be as efficient as possible to decrease wait time, maintain flow for EMS agencies, and be available for true emergencies; the use of tagging makes this simple. Green indicates slightly injured patient, who can walk, and his transfer does not require special means. Yellow indicates the patient can wait. Red is for patients that have a change of survival but medical action should be immediate. Black means the chances of recovery is none. (Hinkle, J. L., Cheever, K. H.)

Structured Interviews

The following questions should be asked to obtain information from patients: What time the event occurred? When did the symptoms appear? Was the patient unconscious after the injury or onset of illness? What was the health status of the patient before the injury or illness? Is there a history of medical illness or previous surgeries? A history of admissions to the hospital? Is the patient currently taking any medications? Does the patient have any allergies? Does the patient use tobacco products or drugs? How frequently? What type? When was the last time they were used? When was the last menstrual period? What was the date of the patient's most recent tetanus immunization? In addition to the collection of initial vital signs and medical history, triage consists of providing basic first aid, which may include application of ice, bleeding control, and basic wound care, EKG, urinalysis, removing sutures. (Hinkle, J. L., Cheever, K. H.)

Survey Items

A systematic way to effectively stabilize and treat health priorities is the primary survey and secondary survey. The primary survey focuses on stabilizing life-threatening conditions. The emergency preparedness team follow the ABCD- (airway, breathing, circulation, disability), method. First, establishing a patent airway, providing adequate ventilation. Second, controlling of bleeding to maintain effective circulation. Third, determining the neurologic state of each patient, asking the following questions; Is the patient alert and responsive? Does the patient response to verbal stimuli or pain? In the secondary survey the following will be included: a complete health history, a head-to-toe assessment, diagnostics and laboratory testing, IV insertion, EKG, splinting of possible fractures, dressing wounds.

The most common types of injuries following an earthquake are intra-abdominal injuries are subdivided into two categories: penetrating abdominal injuries and blunt trauma. Penetrating injuries are more commonly associated with the small bowel and liver and often require surgical repair while blunt trauma occurs most often on the extremities, chest, and head but may involve any organ. The nurse must first take a history of the physical trauma followed by visually inspecting and then auscultating the abdomen for the presence of bowel sounds. Assessing further may reveal pain, rebound tenderness, and muscular rigidity along with signs of bleeding such as hypotension and shock. It is important to note that the location of the pain may be indicative of the source of injury. Pain in the right shoulder may point to liver involvement while left shoulder pain may be indicative of splenic bleeding. After experiencing blunt trauma, the patient's spine will be immobilized until cervical x-rays are taken to rule out spinal injury. Care must be taken when logrolling the patient so as to not further injure the spine. Wound types and locations must be carefully documented. If there is protrusion of viscera, it is covered with sterile saline dressings to prevent drying. Oral fluids may also be withheld in order to prepare for potential surgical procedures. Since patients are exposed to exogenous matter due to the nature of their injuries, they are treated with a prophylactic tetanus vaccine and broad-spectrum antibiotics. The primary goal for patients suffering from intra-abdominal injuries is to minimize time spent in ED and to transport to surgery and further rehabilitation if necessary (Hinkle, J. L., Cheever, K. H.).

Crush injuries may occur during an earthquake as victims may be trapped between two surfaces exerting opposing forces. Patients must be promptly assessed for acute kidney injury, fractures, hypovolemic shock, spinal cord injury and fractures. Even if there is no direct physical

damage to the kidneys, renal damage may still occur as a result of rhabdomyolysis caused by extensive muscular damage. The nurse must carefully observe for a triad of symptoms associated with rhabdomyolysis: dark urine, muscle weakness, and muscle cramps. Major injuries are splinted to prevent further deterioration, pain, and bleeding. Crushing injuries may also cause compartment syndrome, in which case a fasciotomy may be performed (Hinkle, J. L., Cheever, K. H.).

Fractures require appropriate management to prevent potential further tissue damage and disability. The affected part must be splinted if possible and handled as minimally as possible. Extra clothing is cut off or removed to better visualize the area. As with the other injury types discussed, it is vital to assess airway, breathing, and circulation first to acquire a baseline for further assessment and treatment. The fractured body part must be inspected thoroughly for swelling and lacerations. Peripheral pulses must be palpated and special care must be given to those pulses distal to the fracture site. Neurovascular supply is also assessed by palpating for decreased motor function, coolness, blanching and decreased sensation. The affected site must be splinted before patient is moved, as this will help prevent a closed fracture become an open one, as well as preserving circulation, lacerations and deformities. A sterile dressing moist with saline is applied to open fractures. The nurse must monitor the affected site after splinting the affected area by assessing temperature, color, pulse, and capillary refill and any pain reported by patient as these signs may indicate neurovascular compromise (Hinkle, J. L., Cheever, K. H

Conclusion

Finally, the emergency preparedness team would provide comfort and emotional support to the patient and family. Once a disaster is under control, the affected population can begin rebuilding their communities and lives. Nurses would help in conducting community assessments to ascertain where people need help the most, as well as to provide psychological support once the immediate physical wounds are alleviated. Despite considerable disaster-related stresses, nurses provide medical, emotional, and physiological community needs. To optimize disaster response, community wide disaster plans should incorporate nursing facilities.

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