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EMERGENCIES IN GERIATRICS

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Abstract: Age-related changes result in a decreased ability to respond to the stress of injury or critical illness. The geriatric population with trauma are affected due to under triaging in emergency departments. Hospitals without geriatric department witness higher adverse outcomes among geriatric patients as compared to the younger patients. Patients who have particular frailty syndromes are most likely to benefit from additional specialized interventions.

Despite the physiological changes due to aging, there is no protocol for the method and end-points of cardio-pulmonary resuscitation in the elderly patient as the standard care. A geriatric airway is different as compared to an adult airway in performing basic life support as there is poor dentition or absence of dentition which may influence opening of mouth and placement of mask. Limited mouth opening, cervical osteoarthritis or rheumatoid arthritis may interfere in intubation. Special considerations are essential in geriatric resuscitation.

There is greater vulnerability of older persons during a natural disaster. An integrated approach for emergency preparedness is required for the diversity of needs and capacities of older persons to promote the health, participation and security of older persons before, during and after an emergency. The disaster preparedness team should create and use emergency assessment protocols, guidelines and checklists that integrate specific needs and priorities of older persons who are affected, including psychosocial needs. Those who are frail and severely disabled should be protected by developing and implementing plans such as recruiting supplementary care providers and stocking up on essential supplies.

Index Terms: Elderly, Geriatric trauma, Triage, Geriatric resuscitation, Disaster preparedness.

Introduction

Advancing age is associated with a gradual decline in organ function. Age-related changes result in a decreased ability to respond to the stress of injury or critical illness. Approximately 27.5% of all patients visiting emergency department are from geriatric group [1]. The elderly suffer from multiple co-morbidities and thus require more time for various investigative procedures. This may lead to a longer hospital stay. Additionally, previous studies have also demonstrated that hospitals without geriatric department witness higher adverse outcomes among geriatric patients as compared to the younger patients [2]. Finding patients who have particular frailty syndromes can be essential in determining which patients are most likely to experience negative outcomes and to benefit from additional specialized interventions. Geriatric care models are constantly changing to provide multifaceted assessment and management by interdisciplinary professional care teams [3].

Common geriatric emergencies

Fever is the most common symptom of presentation among the geriatric population visiting emergency department. Out of all the elderly patients, 4.3% of them presented with fever [1]. The elderly are susceptible to infections due to poor immunity. Co-morbidities such as diabetes mellitus, chronic renal failure and chronic liver disease render them immune-compromised and vulnerable to infections [4]. Pneumonia and urinary tract infections are most common causes of fever. In a Chinese study, the three most common causes of geriatric emergencies reported were 26.2% in respiratory disease, 20.8% of cardiovascular disease and 10.9% with neurological disease [5]. The common conditions with which the geriatric patients are visiting emergency department are given in table1.

Table 1. Common Geriatric Emergencies

Trauma - Fractures, Spinal injuries, Chest trauma (Shock is frequently associated with the trauma)
Syncope
Shortness of breath- Emphysema, ARDS, Congestive heart failure, Other Cardiac conditions
Chest pain - Acute coronary syndrome
Cardio-pulmonary arrest
Infectious diseases- Pneumonia, Bronchitis, Urinary tract infections, Sepsis, Cellulitis
Medications related emergencies- Polypharmacy, Adverse effects, Drug interactions, Polypharmacy, Adverse effects
Abdominal pain- Abdominal aortic aneurysm, Bowel obstructions, Cholecystitis, Mesenteric ischemia, Diverticulitis
Depression and suicidal attempt- Loss of friends and spouse, Biochemical imbalances, Elder abuse and neglect

Geriatric Trauma

One known risk factor for unfavourable outcomes following trauma is advanced age. Compared to their younger counterparts, older trauma patients have higher rates of morbidity and fatality. Trauma-related increased mortality starts at age 45. It's unclear if this outcome difference results from a larger prevalence of previous medical disorders in the elderly patient, the diminished physiologic reserve that comes with aging, or other as-yet-unidentified causes. However, it is evident that when older patients with survivable injuries receive suitably proactive trauma care, positive results can be obtained in this patient population. Proper triage is the first step towards adequate resuscitation of the trauma patient. Prioritizing care according to the patient's injuries and the medical resources at hand is known as triage. Undertriage, with a rate as high as 74% have been demonstrated among elderly trauma patients [6].

Patients with 70 to 74 years of age with trauma have significantly greater mortality than all younger age groups [7]. Understanding ageing physiology, focused triage that includes medication history, frailty assessment, nutritional status, and early trauma protocol activation are all necessary for the management of older trauma patients in order to enhance outcomes [8]. Early trauma protocol activation should be done in patients aged 55 years or more. Additionally, they recommended that geriatric patients should have a lower threshold for trauma protocol activation, with triage set points of systolic blood pressure less than 110 mmHg and heart ratio 90 beats per minute.

Recommendations for aggressive treatment of geriatric trauma include:

i. ICU admission
ii. Optimizing hemodynamic parameters and aggressive pulmonary therapy
iii. Prompt surgical intervention
iv. Use of hemodynamic monitoring and careful trending of vital signs
v. Pulmonary artery catheter should be a routine part in severe injured geriatric patients

Advanced patient age should lower the threshold for field triage directly to trauma center. All other factors being equal, advanced patient age is not predictive of poor outcomes following trauma and threshold should not be used as the sole criterion for denying or limiting care in older people. The presence of preexisting medical conditions in elderly trauma patients adversely affects the outcome. In patients 65 years of age and older, a GCS< 8 is associated with dismal prognosis. If substantial improvement in GCS is not realized in 72 hours of injury, considerations should be given to limiting further aggressive therapeutic interventions. Specific therapies designed to prevent/ reduce the occurrence of complications should lead to optimal outcomes in geriatric population. With an exception of patients who are moribund on arrival, initial aggressive approach should be pursued.

Geriatric Resuscitation

Despite the physiological changes due to aging, there is no protocol for the method and end-points of cardio-pulmonary resuscitation in the elderly patient as the standard care. A geriatric airway is different as compared to an adult airway in performing basic life support as there is poor dentition or absence of dentition which may influence opening of mouth and placement of mask. Further, there might be limited mouth opening. Cervical osteoarthritis or rheumatoid arthritis may interfere in intubation.

Special considerations in geriatric resuscitation

Care should be taken to prevent forced extension of neck because it may result in atlanto-occipital subluxation and spinal cord injury. Whenever artificial breathing is required, endotracheal intubation is gold standard, however laryngeal mask airway can be used. Mask to mouth breathing may be ineffective as proper sealing may be difficult to establish. Assessment of circulation through carotid artery may be dangerous as atherosclerotic plaque may dislodge and mobilize. External cardiac massage can produce extensive injuries due to osteoporosis or other metabolic conditions. In older people Pulseless electrical activity or asystole are commonly seen in people arriving at emergency departments. Like any other age group, the survival is improved if the initial rhythm is ventricular fibrillation or ventricular tachycardia. Any geriatric patient with physiologic compromise, significant injury (Abbreviated Injury Scale score > 3), and high-risk mechanism of injury, uncertain cardiovascular status, or chronic cardiovascular or renal disease should undergo invasive hemodynamic monitoring using a pulmonary artery catheter.

Attempts should be made to optimize to a cardiac index ≥ 4 L/min/m^2 and/or an oxygen consumption index of 170 mL/min/m^2. Base deficit measurements may provide useful information in determining status of resuscitation and risk of mortality.

Disaster Management for Elderly

There is greater vulnerability of older persons during a natural disaster; for example, the highest age-specific death rates resulting from the 2004 tsunami in Aceh, Indonesia, mortality rates were more concentrated in the youngest children (aged 0–9 years) and oldest adults (70+) [9]. A systematic review reported that elderly people are more vulnerable during disasters. The physical consequences, psychosocial effects, relocation trauma, and ethical issues were identified as the primary themes in the review [10]. Therefore, an integrated approach for emergency preparedness is required for the diversity of needs and capacities of older persons to promote the health, participation and security of older persons before, during and after an emergency.

Problems faced by Elderly

i. Structural damage and social and economic disruption make life much more challenging and disabled older persons become even more dependent on prompt and appropriate care.
ii. The majority of the residents in Institutions are bedridden and this poses difficulties with evacuation.
iii. Lack of railings and support bars, poor access to sanitary facilities, lack of water or electricity, as well as excessive heat or cold, poor bedding.
iv. Disruption in rehabilitation schedule/physiotherapy may accelerate their decline
v. There may be shortage of medications and medical equipment for chronic conditions, as well as a lack of assistive devices, such as eyeglasses, hearing aids, dentures and mobility aids.
vi. The food provided in shelters is not easy to prepare, consume or digest.

Emergency Policies – Geriatric considerations

i. Emergency policies should include management of chronic illness to maintain and restore functional capacity. Health services should widen their intervention focus to ensure continuity of care across settings and over time.
ii. Physical, social and financial protection and care to be assured for all persons prior to, during and after emergencies in accordance with their basic human rights and individual needs. Families and communities are to be supported in their efforts to care for older members in the same way that older persons are to be supported in efforts to provide care to others.

Major Guidelines for Disaster Preparedness for elderly

Health and support services should coordinate activities of agencies responsible for health care and services for older persons with those from agencies responsible for emergency preparedness. Regional demographic, social and health information should be readily available to create a population profile of health needs. Emergency health supplies including medications, medical equipment and supplies, and assistive aids to meet the needs of persons with chronic illnesses and disabilities should be replenished. An up-to-date local registry of long-term care facilities, group dwellings and private households with persons who are likely to be vulnerable in an emergency should be available. The disaster preparedness team should create and use emergency assessment protocols, guidelines and checklists that integrate specific needs and priorities of older persons who are affected, including psychosocial needs. Emergency food supplies should be nutritious, readily digestible and easy to prepare and eat. Evacuation plans, modes of transportation and barrier-free shelters should be designed to accommodate older persons with special medical or functional needs, and equip and staff the shelters. Public education on ways and resources to safeguard one's own health or the health of vulnerable family members should be provided in an emergency.

In primary health care settings, individual counselling to older persons and their families should be given on ways to meet specific health and functional needs in the event of an emergency. Agencies responsible for public security, emergency management and social services should ensure inclusion of older persons in public safety and evacuation. Information regarding imminent dangers and appropriate security measures and resources should reach older persons effectively, in particular, those with sensory, cognitive and mobility impairments. Those who are frail and severely disabled should be protected by developing and implementing plans such as recruiting supplementary care providers and stocking up on essential supplies.

Conclusion

The geriatric trauma presents a challenging clinical dilemma to any clinical team. Multiple comorbidities, decreased physiologic reserve, and the incidence of occult hypoperfusion often make the chance for a successful functional outcome less likely. Proper triage, prompt recognition of shock, and close monitoring will make the difference and will allow up to 85% of elderly patients the ability to return to their pre-existing functional level. Also, geriatric population is vulnerable in disaster situations. National and local Policies related to disaster preparedness should ensure that elderly have access to health services and meet their health needs.

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