Neurologic Emergencies in the Elderly

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KEYWORDS

• Neurologic diseases • Geriatric patients • Neurologic emergencies

KEY POINTS

- Neurologic diseases are a major cause of death and disability in elderly patients.
- Due to the physiologic changes and increased comorbidities that occur as people age, neurologic diseases are more common in geriatric patients and a frequent cause of emergency department (ED) presentation.
- The care of geriatric patients with neurological emergencies in challenging and complicated. ED physicians can improve outcomes and quality of life in these patients through aggressive and directed care in conjunction with specialists consultation.

INTRODUCTION

Neurologic diseases are a major cause of death and disability in elderly patients. Due to the physiologic changes and increased comorbidities that occur as people age, neurologic diseases are more common in geriatric patients and a major cause of death and disability in this population. This article discusses the elderly patient presenting to the emergency department with acute ischemic stroke (AIS), transient ischemic attack (TIA), intracerebral hemorrhage (ICH), subarachnoid hemorrhage (SAH), chronic subdural hematoma (CSDH), traumatic brain injury, seizures, and central nervous system (CNS) infections. This article reviews the subtle presentations, difficult workups, and complicated treatment decisions as they pertain to our older patients.

ACUTE ISCHEMIC STROKE

Stroke is the fourth leading cause of death and the leading cause of long-term disability in the United States, and approximately 795,000 Americans suffer a new or recurrent stroke annually.[1] AIS makes up approximately 87% of all strokes, and occurs when a thrombotic or embolic event causes sudden loss of blood supply to an area of the brain with resulting focal neurologic deficits.[1,2] AIS tends to be a

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disease of the elderly, with average first stroke occurring at age 75 for women and 71 for men,[1] and 30% of all strokes occurring in patients older than 80 years.[3] Additionally, it is estimated that the incidence of stroke will more than double between 2010 and 2050, with most of the increase occurring in patients with age older than 75 years.[4] AIS in geriatric patients is also associated with much worse outcomes than in younger patients[1] (**Box 1**). Given the high incidences of AIS with associated increases in morbidity and mortality in geriatric patients, it is important that these patients are rapidly diagnosed and treated so as to offer them the greatest likelihood of a good outcome.

The diagnosis of AIS is made using a combination of patient history, physical examination, and imaging studies. Patients suffering an AIS may present with a variety of focal neurologic deficits, and elderly patients are more complicated as they may present with known focal neurologic symptoms or less specific atypical signs and symptoms[2,5] (**Box 2**). In addition to presenting with atypical symptoms, geriatric patients are significantly less likely to know signs and symptoms of stroke,[6] and more likely to delay going to the hospital.[5] A high degree of suspicion should always be maintained in evaluating elderly patients with focal neurologic symptoms and possible AIS.

Elderly patients presenting with suspected AIS should be triaged at the highest priority and undergo immediate evaluation by an emergency physician followed by urgent stroke team consultation. Initial evaluation should begin with a primary survey and immediate stabilization of the airway, breathing, circulation (ABCs) as needed with concurrent point-of-care blood glucose testing. A precise but expedited history should be obtained from the patient or accompanying family or caregivers, with special attention given to the time of symptom onset and/or the time that the patient was last seen at his or her neurologic baseline, as well as any potential contraindications to intravenous (IV) recombinant tissue plasminogen activator (rt-PA)[7] (**Box 3**). A rapid and thorough physical examination must be completed and the focused neurologic examination is enhanced by the use of a formal stroke score or scale, such as the National Institutes of Health Stroke Scale (NIHSS)[8] (access at: https://www.ninds.nih.gov/doctors/NIH_Stroke_Scale.pdf). Laboratory testing should include coagulation studies, platelets, and renal function. Given the increased risk of cardiac arrhythmias, especially atrial fibrillation, and cardiac ischemia in the elderly, a 12-lead electrocardiogram, cardiac monitoring, and cardiac enzymes should be performed in all elderly patients with suspected AIS.[7] This initial workup should not delay urgent brain imaging, especially in patients with onset of symptoms within the past 3 to 6 hours.

Patients presenting with possible AIS should undergo urgent brain imaging by computed tomography (CT) or MRI is necessary to exclude the presence of hemorrhage as the cause of the patient's focal neurologic symptoms and may help to guide

Box 1
Worsened outcomes in patients suffering an ischemic stroke

- Increased risk-adjusted mortality
- Increased disability
- Longer hospitalizations
- Less evidence-based care
- Less likely to be discharged to their initial residence

Data from Mozaffarian D, Benjamin EJ, Go AS, et al. Heart disease and stroke statistics—2015 update: a report from the American Heart Association. Circulation 2015;131(4):e29–322.