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Chinese emergency expert consensus on the diagnosis and treatment of sepsis-associated encephalopathy in the elderly

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Abstract

Sepsis-associated encephalopathy (SAE) is a diffuse dysfunction of the nervous system resulting from sepsis originating outside the central nervous system. The elderly (≥65 years of age) are a particularly vulnerable population, and the emergency department is typically the first point of contact after onset. Clinical symptoms in elderly patients with SAE are often atypical, compounded by a high burden of underlying diseases and complications, which frequently leads to underdiagnosis or misdiagnosis. These patients are at an increased risk of long-term or permanent central nervous system impairment, making rapid and accurate diagnosis and treatment especially critical. Currently, there are no standardized diagnostic or treatment guidelines tailored specifically to geriatric SAE. This expert consensus, grounded in evidence-based medicine and clinical experience, offers recommendations on the risk factors, clinical characteristics, diagnosis, and treatment of geriatric SAE. The goal is to standardize care, improve diagnostic accuracy, reduce mortality, and enhance patient outcomes.

Keywords: Elderly, Emergency, Sepsis-associated encephalopathy

Background

Sepsis-associated encephalopathy (SAE) is a form of diffuse neurological dysfunction that arises secondary to sepsis, in the absence of overt central nervous system (CNS) infection.[1] The rising incidence of sepsis among older adults (aged ≥65 years) has led to a corresponding increase in SAE cases within this demographic.[2] Owing to atypical clinical presentations, multiple comorbidities, and age-related complications, elderly patients with SAE frequently experience delays in diagnosis and treatment, which may result in long-term or irreversible CNS injury. Consequently, timely and accurate diagnosis and interventions are essential for optimizing outcomes in this vulnerable population. However, standardized diagnostic and therapeutic protocols for SAE in elderly patients are currently lacking. This consensus was formulated based on the latest available evidence and expert clinical insights, with the goal of guiding the management of SAE in older adults.

Methods

Initiators and expert group members

This consensus was jointly initiated by the Chinese Society of Emergency Medicine, the Emergency Medicine Branch of the Chinese Geriatrics Society, and the Emergency Medicine Branch of the Beijing Medical Association. Development began in October 2024, and

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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the consensus was completed in May 2025. The consensus is registered with Consensus-registry.cn (PREPARE-2024CN1199).

Evidence retrieval

The expert panel, composed of specialists in emergency medicine, was responsible for drafting the consensus document and conducting literature searches and appraisal. Four databases—PubMed, EMBASE, China National Knowledge Infrastructure, and Wanfang—were searched from inception to April 2025 using bilingual (Chinese and English) keywords including "sepsis-associated encephalopathy," "diagnostic criteria for sepsis-associated encephalopathy," "therapeutic strategies for sepsis-associated encephalopathy," and "geriatric sepsis." Eligible sources included meta-analyses, systematic reviews, randomized controlled trials, retrospective studies, case reports, clinical guidelines, and expert consensus statements.

Classification of quality of evidence and strength of recommendations

These sources were subsequently evaluated and scored by the expert group using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The strength of each final recommendation was classified based on the mean score as follows: <3.00 (not recommended), 3.00–3.99 (weakly recommended), 4.00–4.49 (recommended), and 4.50–5.00 (strongly recommended).[3]

Risk factors

Studies have shown that a history of CNS disorders (eg, stroke and epilepsy), long-term psychotropic drug use,[4] acute kidney injury, and homeostatic disorders are key risk factors for SAE in the elderly.[5] Acute kidney injury can lead to acidosis and metabolic abnormalities, resulting in the accumulation of neurotoxic substances. Geriatric sepsis is often associated with metabolic imbalances such as hypoglycemia, hyperglycemia, and hypernatremia, which further increase the risk for SAE.[6,7] Additionally, the CNS in older adults is more susceptible to injury during sepsis as a result of reduced tolerance to hypoxia and impaired vascular autoregulation. In this context, low mean arterial pressure (MAP), a reliable indicator of tissue perfusion, can result in cerebral hypoperfusion and neuronal injury, thereby contributing to the development of SAE.[8]

Recommendation 1: Risk factors for SAE in the elderly include underlying CNS diseases, long-term psychotropic drug use, homeostatic disorders, hypoxemia, and hypoperfusion (4.54 points; strongly recommended).

Clinical features

Elderly patients—particularly those aged ≥80 years—often cannot provide accurate medical histories as a result of memory loss or dementia. Clinical manifestations of SAE in this population are frequently atypical, with approximately one-quarter presenting with nonspecific symptoms. These patients often lack clear signs of systemic infection (eg, fever or elevated white blood cell count).[9] Some may exhibit altered mental status (eg, changes in cognition or arousal, confusion, or impaired attention[10]), whereas others may present in coma, leading to misdiagnosis as other CNS disorders.

Older adults often have multiple chronic conditions (eg, diabetes, cancer, congestive heart failure) and weakened immune systems, which increase their susceptibility to infection.[11] In these cases, SAE typically arises from the combined effects of chronic disease and sepsis, rather than an isolated dysregulated immune response. This complex interplay complicates diagnosis, making early identification of SAE particularly important in elderly individuals. Table 1 outlines the differential diagnosis of SAE.

Recommendation 2: Misdiagnosis and missed diagnosis of SAE are common as a result of inaccurate medical histories, atypical clinical manifestations, and complex underlying diseases in elderly SAE patients. Early identification of SAE is crucial (4.67 points; strongly recommended).

Table 1

Differential Diagnosis of Sepsis-Associated Encephalopathy (SAE) and Other Conditions Based on Clinical Features

Features	SAE	Stroke	Epilepsy	Metabolic Encephalopathy
Disease onset and state of consciousness	• Synchronized with sepsis • Progressive impairment of consciousness • Delirium • Decreased concentration or orientation • Coma	• Acute onset (minutes to hours) • Sudden focal neurological deficits • Level of consciousness depends on lesion location (eg, brainstem lesions may cause coma)	• Episodic (lasting seconds to minutes) • Loss of consciousness during the ictal phase (tonic-clonic seizures) • Normal consciousness between episodes	• Onset synchronized with metabolic disturbances (eg, hyponatremia, liver failure) • Fluctuating levels of consciousness • Drowsiness progressing to coma
Neurological signs	• No focal neurological deficits • Diffuse hypertonia or hypotonia	• Focal deficits (eg, hemiplegia, aphasia, visual field loss) • Positive pathological reflexes	• Tonic-clonic seizures during the ictal phase • Postictal paralysis (Todd paralysis)	• Symmetrical tremor • Ataxia (eg, Wernicke encephalopathy) • Asterixis (eg, hepatic encephalopathy)
Accompanying symptoms	• Nausea and vomiting • Dyspnea	• Headache (suggestive of hemorrhagic stroke) • Vertigo (posterior circulation stroke) • Dysarthria or dysphagia	• Preictal auras (eg, visual hallucinations, olfactory hallucinations) • Tongue biting • Urinary or fecal incontinence	Symptoms of underlying disease: • Jaundice (eg, hepatic encephalopathy) • Polyuria/oliguria (eg, renal failure) • Hunger pangs (eg, hypoglycemia)
Accompanying signs	Signs of sepsis-associated organ failure: • Skin mottling • Acral cyanosis (hypoperfusion) • Decreased urine output	Vascular indicators: • Carotid bruit • Atrial fibrillation • Acute hypertension (hemorrhagic stroke)	Ictal indicators: • Mydriasis (tonic) • Tachycardia or apnea	Signs of metabolic disturbances: • Kayser-Fleischer rings (Wilson disease) • Signs of clinical dehydration (eg, hyperosmolar coma) • Palmar erythema or spider angiomas (hepatic encephalopathy)

Common diagnostic methods

Diagnostic approaches for SAE include testing of sepsis biomarkers, neuronal injury markers, and neuroimaging studies (Table 2). In elderly patients presenting with new-onset neurological dysfunction, prompt evaluation with routine blood and urine tests, biochemical panels, measurements of C-reactive protein (CRP), lactic acid (Lac), procalcitonin (PCT), heparin-binding protein (HBP), and cranial computed tomography (CT) is essential to exclude alternative diagnoses such as stroke or intracranial mass and to enable early sepsis screening.[12,13] Where resources permit, additional assessments—including markers of sepsis-induced neuronal injury, cytokine/chemokine profiling, brain magnetic resonance imaging (MRI), electroencephalography (EEG), and cerebrospinal fluid (CSF) analysis—should be undertaken. MRI is recommended for SAE diagnosis and management, as abnormal findings are observed in over 70% of affected patients.[14] Given the limited specificity and the need for expert interpretation, EEG is not suitable for emergency diagnosis of SAE but may be valuable for monitoring and prognostic evaluation in the intensive care unit.[15] CSF analysis plays a critical role in excluding CNS infection, hemorrhage, and other specific encephalopathies. Given the absence of standardized diagnostic criteria for SAE, a phased, stepwise approach tailored to the available equipment and institutional capabilities is recommended.

Recommendation 3: The diagnosis of SAE should be based on a phased, step-by-step strategy, prioritizing routine blood/urine tests; biochemical tests; measurements of CRP, Lac, PCT, and HBP; and cranial CT (4.33 points; recommended).

Diagnosis

Although no unified diagnostic standard currently exists for SAE, diagnosis requires the simultaneous fulfillment of three essential criteria: (1) presence of sepsis, (2) new-onset neurological dysfunction, and (3) exclusion of alternative causes of neurological impairment (eg, stroke, intracranial infection, poisoning, hepatic encephalopathy, pulmonary encephalopathy, or diabetic hyperglycemic hyperosmolar syndrome).[16] In elderly patients, sepsis often presents atypically,[17] and neurological symptoms may constitute the initial manifestation.[18] For early detection of sepsis in older adults with neurological changes, the quick Sequential Sepsis-related Organ Failure Assessment and the modified Maternal Early Warning System are both recommended tools.[19] Emergency physicians should maintain a high index of suspicion for neuropsychiatric signs—such as confusion, impaired concentration, dyspraxia, delirium, and agitation—upon admission of geriatric patients with suspected sepsis.[20] For clinical evaluation, the Richmond Agitation-Sedation Scale (RASS) and the Intensive Care Delirium Screening Checklist (ICDSC) are useful for assessing delirium, whereas the Glasgow Coma Scale (GCS) is appropriate for evaluating comatose states.[21]

Recommendation 4: The diagnostic criteria for SAE in the elderly include (1) sepsis, (2) new-onset neurological dysfunction, and (3) exclusion of other causes of neurological dysfunction (4.39 points; recommended).

Screening for infection foci

Accurate identification and early control of infection foci are central to the management of SAE. In patients aged ≥85 years, lower respiratory tract and urinary tract infections are the most prevalent causes of sepsis.[22,23] Aspiration pneumonia is particularly common in this age group as a result of impaired swallowing, weakened cough reflexes, muscle loss, and senescence.[24] Viral pneumonia accounts for over one-third of community-acquired pneumonia cases in adults and is associated with a high sepsis rate (61%). It disproportionately affects older individuals and is frequently accompanied by neurological symptoms.[25] A Chinese study reported that 35.17% of elderly patients with severe coronavirus disease 2019 exhibited cognitive impairment, and 59.24% had persistent deficits 6 months post discharge.[26,27]

Urinary tract infections are also more common in the elderly as a result of immunosenescence, age-related physiological changes, and frequent catheter use—factors that increase the risk of progression to sepsis and SAE.[28] Bloodstream and intra-abdominal infections, although less common, are characterized by rapid deterioration and high mortality. European and North American studies report a 12%–20% fatality rate for bloodstream infections, with over half occurring in patients over 65 years of age. In such cases, early

Table 2

Common Diagnostic Methods for SAE

Type	Specific Methods	Clinical Value
Laboratory and metabolic testing	Blood and urine routine tests, electrolytes, liver and kidney function tests, blood glucose, blood gas analysis, serum lactate Infection markers (eg, PCT, CRP, HBP) IL-1β and TNF-α Etiological testing	Aids in early detection of infection and systemic inflammatory response
Neuronal injury biomarkers	NSE S100β GFAP NfL	Indicates neuronal or glial injury
Neuroelectrophysiological monitoring	EEG	Detects slow waves, epileptiform discharges, and suppressed brain activity; useful for monitoring and prognostication
Neuroimaging	CT MRI of the brain (eg, DWI and FLAIR sequences)	Excludes acute intracerebral hemorrhage and infarction; assesses structural abnormalities and white matter or microvascular damage
Other specialized tests	CSF analysis (cell count, protein, glucose, etc) Serum autoantibodies	Helps exclude CNS infections, autoimmune encephalitis, and other specific encephalopathies

CNS, central nervous system; CRP, C-reactive protein; CSF, cerebrospinal fluid; CT, computed tomography; DWI, diffusion-weighted imaging; EEG, electroencephalogram; FLAIR, fluid-attenuated inversion recovery; GFAP, glial fibrillary acidic protein; HBP, heparin-binding protein; IL-1β, interleukin-1 beta; MRI, magnetic resonance imaging; NfL, neurofilament light chain; NSE, neuron-specific enolase; PCT, procalcitonin; SAE, sepsis-associated encephalopathy; S100β, S100 calcium-binding protein B; TNF-α, tumor necrosis factor-alpha.

identification of the pathogen and infection source is critical. The diagnosis of intra-abdominal infections is often delayed in elderly patients given nonspecific symptoms, which accelerates progression to sepsis and, ultimately, SAE.

Recommendation 5: SAE in the elderly primarily involves lower respiratory and urinary tract infections, although bloodstream and intra-abdominal infections are also important contributors (4.28 points; recommended).

Principles of treatment

Key principles in the treatment of SAE include rapid recognition and early identification of sepsis, comprehensive patient assessment, identification of the infectious source and causative pathogens, and timely initiation of antimicrobial therapy. In addition to targeted anti-infective measures, supportive care—such as individualized early fluid resuscitation, oxygen therapy, correction of internal environmental disturbances, and appropriate sedation—is essential for promoting functional recovery and improving prognosis in elderly SAE patients (see Fig. 1 for the diagnostic and treatment flowchart).

Antimicrobial therapy

SAE in the elderly is most commonly of bacterial origin. Empiric antimicrobial therapy should be guided by regional patterns of bacterial epidemiology and resistance, as well as the patient's systemic condition and organ function. In cases associated with lower respiratory, urinary, or intra-abdominal infections, gram-negative bacilli are the predominant pathogens.[24] Empiric options may include ß-lactam/ß-lactamase inhibitor combinations (eg, cefoperazone/sulbactam or piperacillin/tazobactam). For severe or drug-resistant bacterial infections, imipenem/cilastatin, meropenem or imipenem/cilastatin/relebactam, and ceftolozane-tazobactam are recommended. In elderly patients with bloodstream infections caused by gram-positive cocci—especially methicillin-resistant *Staphylococcus aureus*—vancomycin may be used. For infections due to vancomycin-resistant enterococci, linezolid or teicoplanin should be considered. Viral sepsis is also relatively common in this population and may lead to early neurological impairment and long-term cognitive decline.[25] In patients with confirmed viral sepsis, antiviral treatment should be initiated promptly. Older adults with SAE—particularly those over 80 years or with comorbidities—are at a higher risk of co-infection with multiple pathogens, and repeated sampling for pathogens may be necessary to improve pathogen detection. In addition to pharmacological therapy, early removal of infection sources—such as sputum drainage, percutaneous abscess drainage, or surgical debridement—is also critical.

Antimicrobial selection must consider factors such as patient age and renal function (eg, creatinine clearance). Where feasible, therapeutic drug monitoring can assist in optimizing individual dosing.

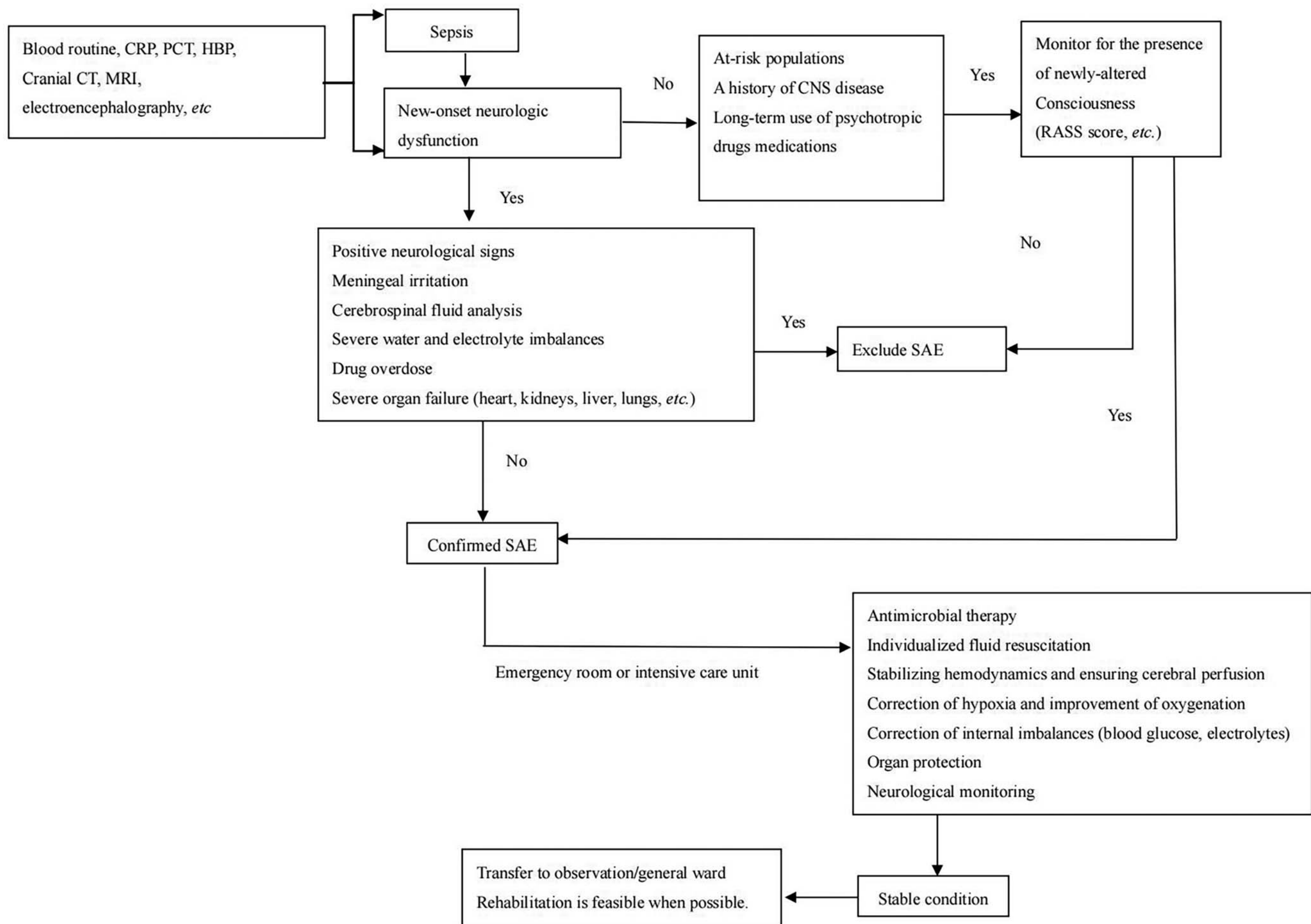

Figure 1. Diagnostic and treatment algorithm for sepsis-associated encephalopathy in the elderly. CNS, central nervous system; CRP, C-reactive protein; CT, computed tomography; HBP, heparin-binding protein; MRI, magnetic resonance imaging; PCT, procalcitonin; RASS, Richmond Agitation-Sedation Scale; SAE, sepsis-associated encephalopathy.

Antimicrobials known to cause neurotoxicity should be avoided in elderly SAE patients with epilepsy, preexisting CNS disorders, or renal insufficiency. Inappropriate or prolonged use of broad-spectrum antibiotics may lead to adverse outcomes,[29] including disruption of the intestinal microbiota and antimicrobial-associated diarrhea.

Recommendation 6: Emergency physicians should develop tailored empiric anti-infective plans for elderly SAE patients, considering comorbidities, organ function, infection site, local bacterial spectrum, and resistance. The treatment protocol can be adjusted once the pathogen is identified. Avoid using antimicrobials that can cause severe adverse reactions in the nervous system (4.54 points; strongly recommended).

Ensuring perfusion and improving oxygenation

Early restoration of hemodynamic stability and timely fluid resuscitation to maintain cerebral perfusion pressure are crucial components of SAE management in elderly patients. Given the diminished cardiopulmonary reserve, older adults exhibit reduced responsiveness to volume expansion and limited tolerance for fluid loading; excessive fluid administration can therefore precipitate pulmonary edema.[30] As such, fluid resuscitation in elderly SAE patients should be individualized and restrictive. (1) For patients with arteriosclerosis and/or hypertension, a higher MAP target of 75–85 mm Hg is recommended to preserve organ and cerebral perfusion.[31] Evidence suggests that maintaining a slightly elevated MAP is associated with reduced in-hospital mortality in SAE patients.[32–34] However, indiscriminate pursuit of MAP targets should be avoided. Vasopressors such as norepinephrine may be used when necessary. (2) Volume status should be reassessed every 2–4 hours, with resuscitation adjusted accordingly to prevent fluid overload. (3) In cases of volume overload (eg, pulmonary edema), diuretics and fluid restriction should be employed; renal replacement therapy may be considered if needed. (4) Colloids may be used to limit capillary leakage.[35] Resuscitation strategies include (1) quantification of fluid intake/output and close monitoring of vital signs; (2) the passive leg raising test, which assesses fluid responsiveness without additional volume administration; (3) bedside ultrasound for rapid assessment of volume status in the emergency setting; and (4) serial measurement of blood lactate levels, as persistently elevated lactate is associated with poor prognosis.

Optimizing oxygenation is also critical in elderly SAE patients. Depending on clinical status—including disease severity, level of consciousness, and spontaneous respiratory effort—oxygen may be delivered via nasal cannula, high-flow nasal cannula, or noninvasive/invasive mechanical ventilation to maintain an oxygen saturation at or above 93%.

Management of blood glucose and internal environment

Blood glucose should be actively controlled in elderly SAE patients. Insulin therapy should be initiated when blood glucose levels reach ≥10 mmol/L. Although hypoglycemia is an independent risk factor for in-hospital mortality among septic patients, overly aggressive glucose-lowering strategies—with target levels of 5.0–6.1 mmol/L —markedly increase the risk of hypoglycemia.[36] For elderly SAE patients receiving insulin, glucose should be monitored at intervals no longer than 1 hour. Once blood glucose level and insulin infusion rates stabilize, monitoring may be extended to every 2–4 hours. However, if hypoglycemia occurs, monitoring frequency should increase to every 15 minutes until glucose stabilizes within the target range. Electrolyte imbalances, particularly disturbances in sodium levels, must also be promptly corrected to preserve internal homeostasis. Key principles in managing electrolyte abnormalities in elderly SAE patients include (1) screening for underlying conditions such as hypothyroidism, adrenal insufficiency, or heart failure and (2) adjusting correction speed appropriately, as rapid correction may induce osmotic shifts leading to cerebral edema, whereas delayed correction may hinder treatment and increase mortality.

Recommendation 7: Stabilizing hemodynamics and ensuring cerebral perfusion are two fluid resuscitation strategies in elderly SAE patients. A cautious and individualized approach to fluid resuscitation, using restrictive fluid volumes. Supportive treatment for elderly SAE patients focuses on improving tissue perfusion/oxygenation, controlling blood glucose levels, and correcting internal imbalances (4.56 points; strongly recommended).

Sedation

For elderly SAE patients requiring sedation, both "shallow sedation" and "intermittent sedation" are recommended, with a target RASS score of −2 to +1.[37] Dexmedetomidine, a highly selective α2-adrenergic receptor agonist acting on both central and peripheral receptors, is the preferred agent. Its immunomodulatory and anti-inflammatory properties make it well suited for use in septic patients.[38] However, in elderly SAE patients, dexmedetomidine may induce bradycardia and hypotension; therefore, a reduced loading dose (0.5 μg/kg over 10 minutes) followed by a maintenance infusion of 0.2–0.7 μg/kg/h is recommended. It should be diluted in saline or glucose solution, with continuous monitoring of heart rate and blood pressure during administration. If bradycardia or hypotension occurs, the infusion should be reduced or discontinued. Dexmedetomidine is not recommended for patients with severe heart block or ventricular dysfunction. As it undergoes hepatic metabolism and is 95% renally excreted, dose adjustment is required in hepatic insufficiency but generally not necessary for short-term use in elderly patients with renal impairment.[39]

Propofol and ciprofol, characterized by a rapid onset (within 1 minute) and short duration of action (3–10 minutes), may serve as an adjunctive sedative for elderly SAE patients requiring brief, reversible sedation for procedures such as bedside bronchoscopy or blood purification in patients with poor cooperation. Research has confirmed that ciprofol is a novel sedative drug with a sedative compliance rate comparable to propofol, and a lower incidence and shorter duration of adverse reactions such as hypotension.[40]

Recommendation 8: Both shallow sedation and intermittent sedation are feasible for elderly patients with SAE. Dexmedetomidine is recommended as the primary sedative agent. When short-term sedation is required for procedures or examinations, propofol and ciprofol may be used as an adjunctive agent (3.97 points; weakly recommended).

Traditional Chinese medicine

In traditional Chinese medicine, SAE is categorized as a manifestation of "unconsciousness" (*Shen* disturbance), with core pathophysiological mechanisms involving excessive heat toxin, obstruction of the orifices by phlegm and static blood, and a deficiency of vital *qi*. These factors interact to form a self-perpetuating pathological cycle. The primary therapeutic principles are "clearing heat and removing toxicity" and "clearing phlegm for resuscitation." In elderly SAE patients, in whom patterns of deficiency and excess often coexist, syndrome differentiation should be carefully refined to guide the selection of appropriate interventions. For heat blocking syndromes—characterized by high fever, unconsciousness, facial flushing, tachypnea, delirium, agitation, and a red tongue with yellow, dry coating—Angong Niuhuang Pill or its derivative Xingnaojing injection may be used. Angong Niuhuang Pill is reported to regulate blood-brain barrier permeability, protect vascular endothelium, and suppress inflammation, thereby reducing cerebral edema and preserving brain tissue integrity.[41] Elderly individuals with severe vital *qi* deficiency

are predisposed to septic shock, leading to SAE manifestations such as unconsciousness, pallor, cyanotic lips, clammy skin, pale tongue, and weak pulse—collectively referred to as *yang collapse syndrome* in traditional Chinese medicine. In such cases, Shenfu injection is indicated for *yang* restoration.[42] Acupuncture at Baihui, Shenmen, Xinyu, Shenting, Neiguan, and Shuigou may also be employed to refresh consciousness, open the orifices, calm the heart, and stabilize the spirit.

Recommendation 9: From the perspective of traditional Chinese medicine, core treatment principles for SAE include "clearing heat and removing toxicity" and "clearing phlegm for resuscitation." Recommended therapies include Angong Niuhuang Pill and Xingnaojing injection. In cases of septic shock with *yang* deficiency, Shenfu injection is indicated. Acupuncture may also be employed to alleviate brain injury (3.9 points; weakly recommended)

Prognostic assessment and rehabilitation for elderly sepsis-associated encephalopathy

Monitoring and prognosis assessment

Systematic assessment of consciousness and continuous monitoring should be performed daily for elderly SAE patients admitted to the intensive care unit. Prolonged delirium or coma indicates severe neurological injury and is associated with an elevated risk of long-term cognitive and motor impairment. Delirium can be assessed using the RASS and ICDSC, whereas the GCS and Full Outline of Unresponsiveness score are appropriate for evaluating coma severity and brainstem reflexes. In SAE cases complicated by epilepsy, refractory status epilepticus (RSE) serves as a critical predictor of poor prognosis. RSE can result in sustained cerebral hypoxia, brain edema, and metabolic disturbances, further exacerbating neurological damage. In elderly patients, RSE is associated with higher mortality due to limited cerebral perfusion and oxygenation reserves. Therefore, if feasible, long-term (24–72 hours) continuous EEG monitoring is recommended to facilitate dynamic evaluation of survival potential and neurological outcomes.[43]

Rehabilitation

Neuropsychiatric sequelae of SAE in older adults may persist for months or even years, contributing to cognitive decline and psychological disorders (eg, depression and anxiety). These complications, in combination with underlying comorbidities and malnutrition,[44] may lead to permanent disability or premature death. Sepsis in elderly patients also reduces physical endurance, often resulting in prolonged bed rest and complications such as recurrent urinary tract infections, hypostatic pneumonia, pressure ulcers, deep vein thrombosis, and sarcopenia. Early initiation of rehabilitation, including nutritional support, psychological evaluation, cognitive training, and emotional support from family members, offers a multidimensional approach to recovery. Such interventions can enhance physical function, mental well-being, and overall prognosis in elderly SAE patients.[45]

Recommendation 10: Continuous, standardized monitoring of consciousness and EEG activity is essential for prognostic assessment in elderly SAE patients. Early rehabilitation, nutritional support, cognitive training, and family-based emotional support are important components of comprehensive care (4.44 points; recommended).

Overall summary

The diagnosis and management of SAE in elderly patients support early recognition, diagnosis, and timely intervention by emergency department physicians. It is hoped that the promotion of this consensus will aid in the development of an emergency pharmaceutical care system, ultimately leading to more standardized, efficient SAE management and improved patient safety.

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Conflict of interest statement

Chuanzhu Lv and Chunsheng Li are Associate Editors of *Emergency and Critical Care Medicine*. Qingbian Ma, Feng Xu, and Hongke Zeng are Editorial Board Members of *Emergency and Critical Care Medicine*. Wei Gu, Caijun Wu, Jun Xu, and Xiaolong Xu are Youth Editorial Board Members of *Emergency and Critical Care Medicine*. The article was subject to the journal's standard procedures, with peer review handled independently of the Associate Editors, Editorial Board Members, Youth Editorial Board Members, and their research groups. The authors declare no conflict of interest.

Author contributions

Lv C, Zhang G, Xie M, Ma Y, Gu W, and Guo W contributed to the study design. Gu W, Zhong J, Han Y, and Liu Y contributed to literature review and the draft of the manuscript.

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Ethical approval of studies and informed consent

Not applicable.

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