

Infection in the Critically Ill Older Adult

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KEYWORDS

• Older adults • Infection • Critical care • Intensive care unit • Elderly • Sepsis

KEY POINTS

- There are many challenges in caring for older adults with infection in critical care environments.
- Older adults are at high risk due to diminished reserve, age-related changes, comorbidities, subtle clinical presentations, and institutionalization.
- Nursing care of the critically ill older adult with infection should be tailored to meet the unique needs of the critically ill older adult.

OVERVIEW

Infection is the invasion of a body or tissue by a microorganism. The infection may vary in severity and progress along a continuum. Incidence of infection increases with age in older adults, who account for 60% of the hospitalized cases.¹ There are many challenges in caring for older adults with infection in critical care environments due to increased risk. Older adults are at increased risk of infection due to age-related changes and associated infections.² The impact is increased mortality with 17% of older adult patients at risk for death compared with 2% of those older adults hospitalized for other problems. Older adults are at higher risk due to diminished reserve, age-related changes, comorbidities, subtle clinical presentations, and institutionalization.³

RISK FACTORS

Certain infections are important risk factors and may reduce quality of life. The infections, which present as a major risk for older adults, include pneumonia, influenza, tuberculosis, bacteremia, and nosocomial infections. Prevention strategies have been suggested in the literature, and improved implementation strategies are needed to play a major role in improving outcomes in older adult patients.¹

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Pneumococcal

Pneumococcal disease is an infection caused by *Streptococcus pneumoniae*. Pneumococcal disease can result in pneumonia, sepsis, or meningitis and has been long recognized as an important risk factor in older adults. *S pneumoniae* bacteria are spread through direct contact, coughing, or sneezing.³

Pneumococcal pneumonia is the most common form of pneumococcal disease, accounting for 60% of the cases and 20% of nosocomial pneumonias. Pneumococcal bacteremia occurs in one-fourth of the cases of pneumococcal pneumonia. The older adult population experiences the highest pneumococcal rates of any population, wherein 50 per 100,000 are impacted. This rate is 3 times higher than the general adult population. The fiscal impact is significant because although the older adult requires hospitalization, the illnesses often result in complications. Sometimes other organ systems are impacted. The death rates from Pneumococcal bacteremia range from 0% to 80%. This percentage increases with age and patient comorbidities.⁴

Even though antibiotics are considered to be effective for treatment, death and complications often occur. Prevention methods, such as the pneumococcal polysaccharide vaccine and pneumococcal conjugate vaccine, can be effective as a cost-effective option. The pneumococcal vaccine is recommended for all older adults. The pneumococcal vaccine should be given after the age of 65 with revaccination after 5 years.³

Influenza

Influenza is caused by the *Haemophilus influenzae* bacteria strains. There are 3 types, A, B, and C. Types B and C are generally milder and do not cause pandemics. A is divided into subtypes and include H1N1 and H3N2. The influenza viruses change and create new strains, which can result in illness. Because of the constant mutation of the viruses, the annual vaccine must be regularly updated. Influenza A and B are major risk factors for older adults.⁵ Epidemics occur each year, usually in winter. Health care costs are significant. Influenza leads all other illnesses in hospitals bed-days with older adults having the highest hospitalization and death rates from influenza of any population group. Eighty percent to 90% of deaths from influenza occur in the older adult population.⁶

Vaccines can provide protection against illness and are the best tool to fight influenza in the older adult population. Recent studies have reported the regular dose influenza vaccination reduced the risk of flu-related hospitalization by 76% in older adults.⁶ The nasal spray vaccine is not approved for older adults because it contains live-attenuated virus.⁷ Vaccine benefits are significant with substantial health benefits. The annual influenza vaccine is available each year starting in October and ending February. The trivalent inactivated virus standard or high-dose vaccine should be used. If the patient has an egg allergy, an allergist should be consulted before administering.

Nosocomial

Nosocomial infections represent any type of infection not present on admission to a hospital but develop after the third hospital day. Common nosocomial infections are caused by *Staphylococcus*, *Pseudomonas*, *Escherichia coli*, *Candida albicans*, hepatitis, or herpes zoster. The major types of nosocomial infections occur in the urinary tract, surgical wounds, blood, or lower respiratory infections, such as pneumonia. Other sites include nonsurgical wounds such as decubitus, intravenous sites, and the gastrointestinal (GI) tract. Incidence is greater in older adults than any other population group. Older adults have the highest rate of urinary tract infections, infected

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