

Management of Aspiration Pneumonia Risks: Information for Clinical Staff

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Morbidity and Mortality

- The mortality associated with aspiration pneumonia mimics that of community-acquired pneumonia: approximately 1% in the outpatient setting and up to 25% in those requiring hospitalization.
- The mortality range depends on the complications of the disease (comorbidities and organism type).
- Without treatment , aspiration pneumonia is associated with a high incidence of cavitation, empyema, acute respiratory distress syndrome, and respiratory failure.
- The mortality rate for severe chemical pneumonitis can be up to 70%.

Mortality and Morbidity

- Pneumonia is the fifth leading cause of death at the age of 65 and it becomes the third leading cause of death in those over 85.
- From 1991 to 1998, individuals who were aging and hospitalized, there was a reported 93.5 percent increase in hospitalization because of aspiration pneumonia.
- The prevalence of dysphagia (swallowing difficulties) for individuals over age of 60 is estimated from 15 to 20%. Prevalence depends on the specific populations sampled with institutional settings, such as assisted living or nursing homes, upward to 40%.

Types Of Pneumonia

- There are many different types of pneumonia.
- The most common types are caused by either a bacterial or a viral infection.
- Pneumonia can effect one or both lungs.
- Pneumonia that is acquired in the community, (work, school) is referred to as community acquired pneumonia.
- Hospital-acquired (or nosocomial) pneumonia is one that occurs 48 hours or more after admission to a hospital.
- Healthcare-associated pneumonia is defined as pneumonia that occurs in a non-hospitalized individual with extensive healthcare contact such as a residence in a nursing home or other long-term care facility, attendance at a hospital or hemodialysis clinic within the prior 30 days, or was admitted to an acute care hospital for at least 2 days in the 180 days before pneumonia.
- Aspiration pneumonia is pneumonia caused by aspiration of oropharyngeal or gastric contents leading to an infectious process.

Definitions

- **Aspiration** is the misdirection of oropharyngeal or gastric contents into the larynx and lower respiratory tract. Although aspiration occurs during normal sleep, muco-ciliary defense mechanisms and cough reflexes usually clear the airways and prevent pulmonary complications from occurring.
- **Pneumonia** is a disease of the lungs characterized by inflammation and consolidation caused by an infection or irritants. The infectious agents are carried to the lungs by inhalation into the tracheobronchial tree and by the blood stream.

Definition

Aspiration pneumonia is a lung infection caused by aspirating or inhaling oral secretions, stomach contents, or both. Small amounts of this material may trickle or be inhaled into the airway and into the lungs. Usually they are cleared out by normal defense mechanisms such as coughing before they can get into the lungs and cause inflammation or infection. When such particles are not cleared because of impaired defense mechanism or because the volume of the aspirated material is so large, they can cause aspiration pneumonia.

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Aspiration Pneumonia

- **Aspiration pneumonia**: results from chronic, usually unwitnessed, inhalation of small amounts of colonized oropharyngeal or gastric contents leading to an infectious process.
- Aspiration pneumonia is an important cause of morbidity and mortality in older individuals or individuals with neurological deficits and impaired mobility, but the incidence has been difficult to quantify because most episodes of aspiration are not witnessed.
- Aspiration pneumonia is prevalent in community acquired pneumonia.

Aspiration Pneumonitis

The clinical manifestations, diagnosis, and treatment of aspiration pneumonitis and aspiration pneumonia represent 2 separate and distinct clinical syndromes.

- **Aspiration pneumonitis** : chemical damage to the tracheobronchial tree and lung caused by acute, often witnessed inhalation of regurgitated gastric contents (acid) in individuals with change in mental status.
- **Aspiration pneumonia**: a lung infection caused by aspirating or inhaling oral secretions, stomach contents, or both.

Conditions that Predispose to Aspiration Pneumonia

- Reduced consciousness, resulting in a compromise of the cough reflex and glottic closure.
- Dysphagia from neurological deficits.
- Disorders of the upper gastrointestinal tract including esophageal disease, surgery involving the upper airways or esophagus, and gastric reflux.
- Mechanical disruption of the glottic closure or cardiac sphincter due to tracheostomy, endotracheal intubation, bronchoscopy, upper endoscopy, and nasogastric feeding.
- Pharyngeal anesthesia, and miscellaneous conditions such as protracted vomiting, large volume tube feedings, feeding gastrostomy, and the recumbent position.

Symptoms of Aspiration

- Sudden appearance of respiratory symptoms (such as severe coughing or cyanosis) associated with eating, drinking, or regurgitation of gastric contents.
- A voice change after swallowing such as hoarseness or gurgling noise.
- Small-volume aspiration is common and are often produces no overt symptoms until the condition progresses to aspiration pneumonia.

Recognizing Aspiration Pneumonia

- Signs and symptoms of pneumonia can vary greatly, from mild to critical illness with signs and symptoms of septic shock and/or respiratory failure.
- The severity may depend on other health conditions and the type of organisms causing the infection.
- Aspiration of gastric contents may cause a chemical injury leading to a bacterial super infection. (Normal gastric contents are sterile due to its acidity. Individuals with gastroparesis or small bowel obstruction, or individuals using antacids are at risk for bacterial growth due to reduced acidity).

Signs and Symptoms of Aspiration Pneumonia may Include:

- Frequent coughing, productive cough
- Shortness of breath, difficulty breathing, wheezing
- Unusual rapid breathing
- Fever, chills, sweating
- Chest pain during coughing or deep breathing
- Feeling dizzy, faint, or confused
- Malaise, myalgia
- Anxious
- Feeling like you can't get enough air
- Skin, lips or fingernails may turn dusky or blue
- Loss of appetite, nausea, vomiting, headache
- Exhaustion

Diagnosing Pneumonia

- Physical examination of heart and lungs to assess for abnormal distinct sounds caused by narrowing of airways or filling of the normally air-filled parts of the lungs with inflammation and fluid. Bubbling or cracking sounds or diminished breath sounds in part of the lung.
- Chest X-ray
- CT Scan of the chest
- Blood test to assess complete blood count and differential count, basic metabolic panel, and blood culture to identify the organism causing the pneumonia
- Sputum or tracheal culture

Pre-Hospital Care

- Tracheal suctioning to remove aspirate in individuals with signs of gastric aspiration (vomit) in the upper airway
- Oxygen supplementation
- Cardiac monitoring and pulse oximetry
- Monitor mental status
- Intravenous placement for supplemental fluids as needed
- Antibiotic therapy

Evaluation for Risks of Aspiration

- Review medical history
- Observe the individual while drinking small amounts of water or food
- Direct care staff should notify clinical staff if an individual coughs/tries to clear throat during meals
- Oral-pharyngeal swallowing evaluation
- Referral to speech language pathologist for oral motor evaluation during feedings
- Occupational therapy to evaluate positioning during meals and at bedtime
- Nutritional assessment
- Medications that increase reflux such as benzodiazepines, neuroleptics, anticholinergics, barbiturates
- Dental evaluation

Management of Individuals Post Aspiration Pneumonia

- Need for combined medical and interdisciplinary strategies
- Swallow studies (Modified Barium Swallow, Video-fluoroscopic swallowing study)
- Compensatory strategies to prevent aspiration during meals
- Dietary modifications such as a change in diet texture, frequency of feedings, pace of feeding, and volume of feeds
- Surgical intervention
- Pharmacologic therapy
- Maintain good oral hygiene
- Improve Positioning – elevate the head of the bed to a 30 - 45 degree angle
- Avoid medications that may cause excessive sedation
- Maintain appropriate endotracheal cuff pressure in tracheostomy individuals
- Monitor gastric residuals in individuals receiving enteral feedings
- Avoid long-term use of nasogastric tube feedings

Dental Care in Aspiration Pneumonia

- Infected teeth and poor dental care may predispose individuals to pneumonia due to the aspiration of contaminated oral secretions.
- Preventing bacterial colonization of the oropharynx is an important measure in preventing aspiration pneumonia. Meticulous oral hygiene and treatment of dental caries and periodontal disease may reduce bacterial colonization. Edentulous individuals may have a reduced risk of pneumonia because of decreased bacterial colonization.
- Missing teeth and poorly fitted dentures predispose to aspiration by interfering with chewing and swallowing. Poor oral hygiene and tooth decay have been correlated with the occurrence of aspiration pneumonia, and good oral hygiene has been associated with a lower rate of pneumonia.
- Brushing once to three times per day has shown to be effective. Tools currently available include toothbrushes with suction tubes attached to aid in removing secretions.

References

National Institute of Neurological Disorders and Stroke (NINDS)

<http://ninds.nih.gov>

Alzheimer's Association

<http://www.alz.org>

American Lung Association

<http://www.lungsusa.org>

Medscape CME (Continuing Medical Education)

<http://cme.medscape.com>

Geriatric Nursing Resources for Caring for Older Adults

<http://www.ConsultGeriRN.org>

Nursing Care of Older Adults

<http://www.nursingcenter.com/AAJNolderadults>

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