Immunization

Vaccines offer some degree of protection against the most common bacterial and viral pneumonias.

Pneumococcal vaccine, made of antigens from 23 types of pneumococcus, usually imparts lifetime immunity with a single dose. The vaccine is recommended for people who have a high risk of adverse outcome from bacterial pneumonias: people over age 65; those with chronic cardiac or respiratory conditions, diabetes mellitus, alcoholism, or other chronic diseases; and immunocompromised people.

Influenza vaccine is also recommended for high-risk populations. The predominant strain of influenza virus varies from year to year. A new vaccine formulation is prepared yearly, incorporating antigens of the influenza strains predicted to be the most prevalent for the upcoming flu season (typically the winter months). Vulnerable populations for whom yearly vaccine is recommended include those listed above as well as health care workers and residents of long-term care facilities. The vaccine contains egg protein, and is not recommended for people who have a severe allergy to eggs or who have previously experienced a severe hypersensitivity response to the vaccine.

Medications

Medications used to treat pneumonia may include antibiotics to eradicate the infection and bronchodilators to reduce bronchospasm and improve ventilation.

Initial antibiotic therapy is based on the results of sputum Gram stain and the pattern of lung involvement shown on the chest X-ray. Typically, a broad-spectrum antibiotic such as a penicillin, cephalosporin, erythromycin, or aminoglycoside is ordered until the results of sputum culture and sensitivity tests are available. Table 36–3 lists commonly prescribed antibiotics for selected pneumonias; nursing implications for selected antibiotics are summarized in Box 8–10.

When an inflammatory response to the infection causes bronchospasm and constriction, bronchodilators may be ordered to improve ventilation and reduce hypoxia. Bronchodilators generally belong to one of two major groups: the sympathomimetic drugs, such as albuterol sulfate (Proventil) and metaproterenol (Alupent); or the methylxanthines, such as theophylline and aminophylline. Use of these drugs and related nursing implications are discussed in detail in the section on asthma.

An agent to “break up” mucus or reduce its viscosity may be prescribed. Acetylcysteine (Mucomyst), potassium iodide, and guaifenesin (a common ingredient in expectorant cough syrups), help to liquefy mucus, making it easier to expectorate. For many clients, however, increasing fluid intake is an effective means of liquefying mucus.

Nursing Implications for Diagnostic Tests

Bronchoscopy

Nursing Responsibilities

- Provide routine preoperative care as ordered. Bronchoscopy is an invasive procedure requiring conscious sedation or anesthesia. Care provided prior to the procedure is similar to that provided before many minor surgical procedures.
- Provide mouth care just prior to bronchoscopy. Mouth care reduces oral microorganisms and the risk of introducing them into the lungs.
- Bring resuscitation and suction equipment to the bedside. Laryngospasm and respiratory distress may occur following the procedure. The anesthetic suppresses the cough and gag reflexes, and secretions may be difficult to expectorate.
- Following the procedure, closely monitor vital signs and respiratory status. Possible complications of bronchoscopy include laryngospasm, bronchosperm, bronchial perforation with possible pneumothorax or subcutaneous emphysema, hemorrhage, hypoxia, pneumonia or bacteremia, and cardiac stress.
- Instruct to avoid eating or drinking for approximately 2 hours or until fully awake with intact cough and gag reflexes. Suppression of the cough and gag reflexes by systemic and local anesthesis used during the procedure increase the risk for aspiration.
- Provide an emesis basin and tissues for expectorating sputum and saliva. Until reflexes have returned, the client may be unable to swallow sputum and saliva safely.
- Monitor color and character of respiratory secretions. Secretions normally are blood tinged for several hours following bronchoscopy, especially if biopsy has been obtained. Notify the physician if sputum is grossly bloody. Grossly bloody sputum may indicate a complication such as perforation.
- Collect postbronchoscopy sputum specimens for cytologic examination as ordered. Cells in the sputum may be examined if a tumor is suspected.

Client and Family Teaching

- Fiberoptic bronchoscopy requires 30 to 45 minutes to complete. It may be done at the bedside, in a special procedure room, or in the surgical suite.
- The procedure usually causes little pain or discomfort, because an anesthetic is given. You will be able to breathe during the bronchoscopy.
- Some voice hoarseness and a sore throat are common following the procedure. Throat lozenges or warm saline gargles may help relieve discomfort.
- You may develop a mild fever within the first 24 hours following the procedure. This is a normal response.
- Persistent cough, bloody or purulent sputum, wheezing, shortness of breath, difficulty breathing, or chest pain may indicate a complication. Notify your physician if they develop.