

NR283 Quiz 5

Pneumonia

- an infection of the alveoli in the lungs
 - causes an increase in fluid or exudate in the lungs
 - this prevents the transfer of oxygen to capillaries & movement of CO₂ into alveoli
- may developed from fungus, bacteria, and virus
 - viral: SARS CoV-2 (COVID-19), influenza (flu), respiratory syncytial virus (RSV), human parainfluenza viruses (HPIVS)
 - bacterial: streptococcus pneumoniae, mycoplasma pneumoniae, legionella
 - fungal: pneumocystis pneumonia, coccidioidomycosis (Valley fever), histoplasmosis
 - parasitic: ascaris, toxoplasmosis
- empiric treatment - treat the most likely cause and adapt based on client's response or new information
 - "is predicted and the treatment is based on what is suspected"
- Bacterial pneumonia
 - Bacteria grow and reproduce in warm moist places like in the lungs
 - Bacteria grow outside cells
 - Types:
 - Community-acquired pneumonia (CAP)
 - Widespread; from people interacting in community
 - Cause: bacteria called *streptococcus pneumoniae* is the most common
 - People at risk: immunocompromised including the elderly, children, and those with chronic illnesses
 - Ventilator-acquired pneumonia (VAP)
 - common in those who require mechanical ventilation
 - clients who might temporarily require assistance to breathe or people with chronic conditions dependent upon a ventilator

- cause: bacterial called *pseudomonas aeruginosa*, *escherichia coli*, and *klebsiella pneumoniae*
 - people at risk: critically ill on mechanical ventilation
- Hospital-acquired pneumonia (HAP)
 - AKA: nosocomial pneumonia
 - found in clients who acquired pneumonia while being in the hospital
 - Cause: bacteria called *staphylococcus aureus* (including *methicillin-resistant S. aureus* [MRSA])
 - People at risk: hospitalized clients
- Aspiration pneumonia
 - Cause: *streptococcus pneumoniae*, *haemophilus influenza*, *staphylococcus aureus*, and gram-negative bacteria found in oral pharynx
 - Occurs when when food gets caught in the lung due to dysphagia
 - People at risk: clients experiencing dysphagia due to stroke, neurological disease, or facial trauma
- Viral pneumonia
 - Occurs when viruses take over cells in the body and make them their own
 - Treatment can include: potential anti-viral medications and supportive therapy
 - Supportive therapy is used to minimize the amount of damage and symptoms experienced
 - Cause: SARS-CoV-2 (COVID), influenza (several strains of the flu), and respiratory syncytial virus (RSV)
- Signs and symptoms
 - Viral pneumonia
 - Symptoms
 - muscle aches
 - headache
 - nausea and vomiting

- dry cough
 - weakness
- Fungal pneumonia
 - Symptoms
 - Night sweats
 - Rash
- Symptoms in general
 - cough (usually productive with a discolored sputum)
 - shortness of breath
 - sharp pain at the site of inflammation (chest or side)
 - fever
 - chills
 - loss of energy or appetite
 - not feeling well (malaise)
- signs in general
 - decreased oxygen saturation
 - fever
 - increased pulse rate
 - increased blood pressure
 - abnormal chest x-ray
 - abnormal lung sounds
 - lymph node enlargement
- Testing for pneumonia
 - Bacterial pneumonia
 - culture and sensitivity test
 - obtaining samples of the affected area in the alveoli and growing these samples in a petri dish to determine the cause
 - Collection includes sputum samples or collected fluid from a bronchoscopy test
 - Antibiotics are then tested on these samples to determine the best treatment
 - Viral pneumonia
 - blood testing may be used
 - tested using polymerase chain reaction (PCR) tests

- look for specific genetic material to determine if it matches a known virus
- fungal pneumonia
 - Blood testing to measure immunoglobulin M and G (IgM and IgG) levels
 - infections are difficult to treat and may require months of anti-fungal medications
- parasitic pneumonia
 - usually includes cultures of blood and body fluids including sputum, urine, and stool
- Treatments
 - antibiotic, antiviral, or antifungal therapy should be started immediately
 - advanced treatment
 - **Chest physiotherapy**: a process by which tapping on the back and sides of someone helps loosen secretions for easier removal with coughing
 - **Small volume nebulizer (SVN)**: a way of delivering medication deeper into the lung
 - **Proning**: repositioning someone on their stomach for a period of time to allow for better oxygenation of the upper lungs
 - **High-flow oxygen**: oxygen delivery using a higher flow rate
 - **Artificial ventilation**: using a separate machine to deliver premeasured breaths, pushing them directly into the lung
 - **Extracorporeal membrane oxygenation (ECMO)**: bypassing the lungs by pulling blood from the body, oxygenating the blood, then returning it to the body
- Preventions
 - Frequent hand washing
 - Social distancing
 - Vaccines

- Good air filtration
- Personal protective equipment (PPE)
- High risk factors
 - older than 65 years of age
 - declining or poor kidney function
 - low blood pressure (systolic blood pressure below 90 mmHg)
 - tachypnea (increased respiratory rate over 30 breaths per minute)
 - hypothermic (low temperature)
 - abnormal heart rate (heart rate below 50 or more than 100)
 - needing assistance with breathing

Asthma

- an obstructive condition that causes shortness of breath due to an inflammatory response in the lungs.
- a disease with reversible bronchial obstruction usually caused by an inflammatory response to environmental or internal triggers
- affects all ages but is most common in children and younger adults
- area affected is small bronchi or bronchioles
- Poorly treated acute asthma may lead to irreversible damage to the lungs over years
- occurs in people with hypersensitive or hyperresponsive airways
- Acute asthma is a single episode; chronic asthma is the long-term condition
- Symptoms
 - difficulty breathing (also called dyspnea)
 - wheezing
 - cough
 - excess mucus production
 - fatigue
- when asthma attacks
 - experiences a “flare” or exacerbation triggered by something intrinsic or extrinsic