Preconference Form

Student Name: Kellianne Graber

Medical Diagnosis/Disease: COPD

NCLEX IV *(8)*: **Physiological Integrity/Physiological Adaptation**

Anatomy and Physiology
Normal Structures

COPD starts in the respiratory system. The respiratory system is made up up lungs, airways, diaphragm, voice box, throat, nose, and mouth. This is what helps protect the body from all off the harmful particles as well as helps speech and smell.

Airways are passages that allow air to travel in and out of lungs. They bring oxygen into the body and remove carbon dioxide. The nose is the first part of the respiratory system as it is the entrance to the outside world. It filters the air that is breathed and gives the sense of smell. It also is what keeps the air moving in the respiratory system as it keeps it moist and warm.

Cilia are hairlike structures that tap the dirt, debris, and particles from entering into the body. They are also all throughout the respiratory tract.

Upper airways consist of nasal cavities (located in nose), sinuses, pharynx, and larynx. They are all in the face, head, and neck. Pharynx is the throat and is the airway that assists in breathing and digesting food. It leads air from the nose and mouth to the larynx. It also will bring food to esophagus then to the stomach. It is the first defense to making sure that the food or liquid do not go into trachea or lung.

The larynx is the voice box and is in the middle of the neck above the trachea. Air is passed from the throat to trachea and then to lungs.

Lower airways are the trachea, bronchi, and bronchioles. These are in the neck/chest.

Trachea is connected to the larynx and the bronchi. The bronchi are what then will send the air into the lungs. Trachea has rings of cartilage that look like C's. Those rings are what has cells that make mucus. Mucus is important because it is what keeps allergens, dust particles, and various other debris out of lungs and body. Bronchi is large tubes at connect to trachea and then to lungs. Bronchioles

Pathophysiology of Disease

Characterized by chronic inflammation of the airways. The major feature of COPD is that there is an airflow limitation that is not reversable when exhaling. This means that there is a loss of recoil and airflow obstruction. This can be from mucosal edema, bronchospasm, or mucus hypersecretion.

COPD has a high risk of forming to cigarette smoking or inhaled particles that make parts of the body inflamed. There are other factors that might cause the inflammatory process, such as genetics.

The predominant inflammatory cells are neutrophils, macrophages, and lymphocytes. These are all types of white blood cells.

COPD is slightly more common in men and have a lower response to O2 therapy. In women, it is increasing due to more smoking, and increased susceptibility as they have smaller lungs and airways. Women who smoke have a 50% more chance to develop COPD than men who smoke. Women with COPD also have lower quality of live, less phlegm, increased dyspnea, and more exacerbations.

Unable to blow air is the main characteristic. The main site in the body for this limitation is the smaller airways. The peripheral airways are obstructed, therefore, the air gets trapped. Since air is then trapped in the lungs, the chest then expands unnaturally into a barrel shape. This happens because respiratory muscles are unable to function properly and effectively. The patient will then become dyspneic and unable to exercise properly due to unable to breathe properly.

There are 4 classifications of COPD: mild, moderate, severe, and very severe. The classifications take into consideration of the patients symptoms, classification, and exacerbation history.

The first symptom that the patient usually notices is a persistent, chronic cough. This is usually not a red flag to them as COPD and dismissed because it can be associated with other outside factors.

NCLEX IV *(7)*: **Reduction of Risk**

Anticipated Diagnostics

Labs

ABG- Arterial Blood Gas
CBC
BMP
Sputum culture
Pulmonary function test
BNP- B-type Natriuretic Peptide
Genetic testing

Additional Diagnostics

X-Ray
CT scan
Spirometry
COPD Assessment Test
Clinical COPD Questionnaire
6-min walk test

are like tree branches and spread throughout the lungs.
Airways are what helps a person regulate temperature, clear mucus, speak and smell.
Lungs are vital organ and there are two located on the left and right side of the body. The right lung has three lobes: superior, middle, and inferior. Left lung only has two lobes: superior and interior. This is because the heart is located where the middle lobe would be. This makes the lung appear smaller than the right. Both lungs are protected by pleural tissue. Pleura is a thin and watery tissue membrane. This is part of the respiratory system and wraps the lungs as a protection. The protection Is so that it is a cushion and do not rub against chest wall. There is visceral pleura and parietal pleura. The visceral is inner and parietal is outer. Visceral covers lung, bronchi, and all the inner parts of lungs. Parietal is what attaches to the chest wall and this is what feels pain if there is an obstruction. It is common that if there is an obstruction that it is pleural effusion which is when too much of the pleural fluid builds up in the pleural space. This can happen if the body is producing too much or not absorbing enough.
White blood cells:
Neutrophils – kills bacteria, fungi, and debris to protect the body.
Lymphocytes – natural killer cells, B cells. Used to protect body against viral infections.
For COPD, the bronchioles lose shape and become clogged with mucus. Walls of alveoli are destroyed, therefor, having to form less larger alveoli.
Alveoli are air sacs in the lungs and are important to keep air moving and flowing so that fluid does not build up in the lung.

Those can include believing they are sick, smoking, or even environmental exposure like air pollution. They also feel chest heaviness, increased effort to breathe, or take a deep breath. This is also dismissed as they believe that it is due to lack of exercise or aging. Usually is diagnosed when patient has signs of dyspnea and are unable to complete ADLs without becoming out of breath, weak, or other symptoms.

NCLEX II *(3)*: **Health Promotion and Maintenance**

NCLEX IV *(7)*: **Reduction of Risk**

Contributing Risk Factors	Signs and Symptoms	Possible Therapeutic Procedures	Prevention of Complications (What are some potential complications associated with this disease process)
Smoking Asthma Infection Air pollution Gender Possible Aging Occupational chemicals and dust Genetics	Persistent coughing Chest heaviness Not being able to take a deep breath Gasping Increased effort to breathe Air hunger Significant airflow	Non-surgical Oxygen therapy Physical therapy Nutritional therapy CPAP machine for sleeping Surgical	Stop smoking Stay away form occupational chemicals or dust Chronic pain Impaired balance/risk for falls Not getting proper nutrition-

	limitation without cough or sputum Dyspnea Fatigue Weight loss Anorexia	Lung volume reduction surgery (LVRS) Bronchoscopic lung volume reduction (BLVR) Bullectomy Lung transplant	malnourishment/dehydration (anorexia)

NCLEX IV *(6)*: **Pharmacological and Parenteral Therapies**

<u>Anticipated Medication Management</u>
Inhaled Corticosteroids
Inhalers
Oxygen
Antibiotics
Bronchodilators
Anti-infectives
Acetaminophen

NCLEX IV *(5)*: **Basic Care and Comfort**

<u>Non-Pharmacologic Care Measures</u>
Distractions – music, TV, phone, book
Deep breathing/breathing techniques
Incentive Spirometer
Nutritional diet
Low impact exercise

NCLEX III *(4)*: **Psychosocial/Holistic Care Needs**

<u>What stressors might a patient with this diagnosis be experiencing?</u>
Unable to work/financial distress
Death
Unable to breathe
Fatigue
Lack of sleep
Dependence on others
Anxiety
Develop other problems like hypertension
Chronic cough

Client/Family Education

<u>List 3 potential teaching topics/areas</u>

• The harmful effects of smoking and proper ways to quit.

•Proper nutrition with well-balanced diet of fruits, whole grains, vegetables, and protein.

• Deep breathing techniques to open lungs. Proper way to use incentive spirometer. Educate patient on important use of doing exercises 10x per hour while awake.

NCLEX I *(1)*: **Safe and Effective Care Environment**

<u>Multidisciplinary Team Involvement</u>
(Which other disciplines do you expect to share in the care of this patient)
Respiratory therapist
Occupational Therapy
Radiologist
Surgeon
Physical Therapy
Nutritionist
Case manager
Home health