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"MEDICAL CASE STUDY ON TOPIC- CHRONIC OBSTRUCTIVE PULMONARY DISEASE."

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PATIENT'S DATA

❖ PATIENT- (A) BIO DATA	❖ PATIENT- (B) BIO DATA
▪ **Name** : Mr. Rajesh Sarkar	▪ **Name** : Mr. Ajith Singh
▪ **Age** : 24Years	▪ **Age** : 34 Years
▪ **Sex** : Male	▪ **Sex** :Male
▪ **Marital status** :Unmarried	▪ **Marital status** :Married
▪ **Occupation** :Student	▪ **Occupation** :Farmer
▪ **Educational Status** :B.com	▪ **Educational Status**:Highschool

- **Address :T**allakholtaalmora
- **Date of admission :** 09/08/2023
- **Name of the Ward** :ICU
- **Consultant Doctor**:Dr. Rajeev KumarSingh
- **Provisional diagnosis - COPD**
- **Final Diagnosis** :COPD
- **Date of discharge**: 13/08/2023

- **Chief Complaints :** fever, coughing, chest tightness, dyspnea

- **Address :**Bajpur
- **Date of admission :** 07/08/2023
- **Name of the Ward** :ICU
- **Consultant Doctor** :Dr. Rajeev Kumar Singh
- **Provisional diagnosis – COPD**
- **Final Diagnosis** : COPD
- **Date of discharge:** 14/08/2023

- **Chief Complaints :** fever , dyspnea, Shortness of breath, restlessness.

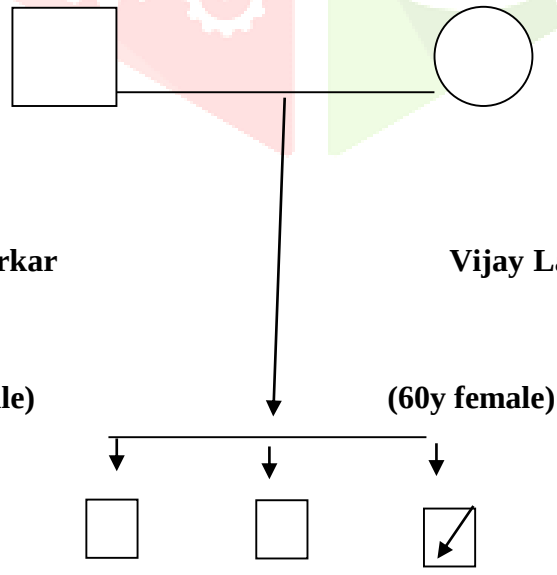
❖ **HISTORY OF PRESENT ILLNESS**:

HISTORY OF ILLNESS (MEDICAL & SURGICAL)

1. **History of present illness** –Mr. Rajesh Sarkar 24-year male presented to the casualty after being referred from CHC almora. Patient has a history of RTA on 9/08/2023 followed by abdominal trauma. he got shifted to ICU-2 for close monitoring and further management.

2. **History of past illness** –
   - **Surgery –** Not any past history of surgery.
   - **Medical –** not any significant past medical history.
   - **Allergies –** Not any significant history of allergies to the patient.

3. **Family history** –
   - **Family tree –**
   -



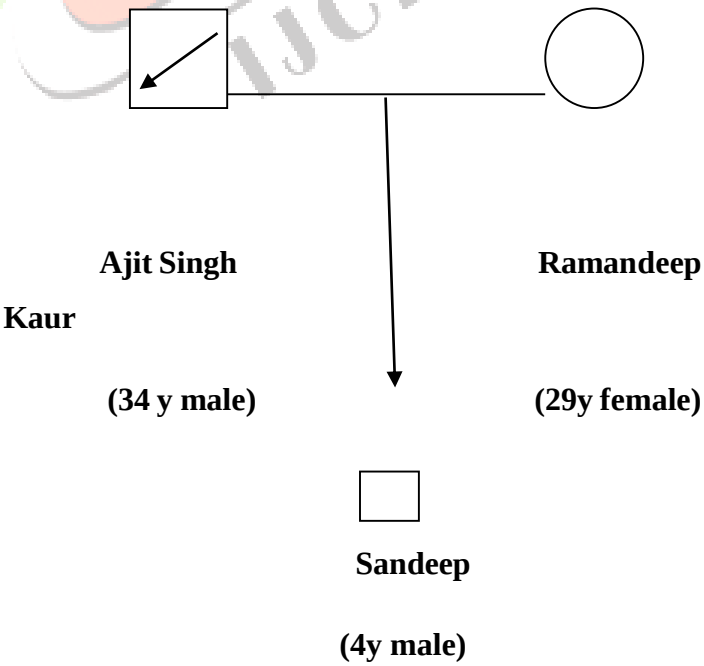
❖ **HISTORY OF PRESENT ILLNESS**:

HISTORY OF ILLNESS (MEDICAL & SURGICAL)

1. **History of present illness –** Mr. Ajith Singh 34-year male presented to casualty after being referred from CHC Bajpur. Patient has a history of after which he went to a local hospital in Bajpur from where he was referred to Krishna hospital, where he was admitted in ICU-2 for further management.

2. **History of past illness** –
   - **Surgery –** No any past history of surgery.
   - **Medical-** not any significant past medical history.
   - **Allergies–** Not any significant history of allergies to the patient.

3. **Family history** –
   - **Family tree –**



❖ **KEYS**

Male

Female

Male patient

HEALTH FACILITY NEAR HOME: CHC Almora

❖ **SOCIOECONOMIC STATUS**

Housing: Pucca house with five room's one kitchen one toilet one lawn.

Water supply: Tap water supply

Sanitation: Irrigation toilets

Income:family income 50,000/year

❖ **PERSONAL HISTORY**

- **Hobbies:**Cooking
- **Dietary habits:** Healthy
- **Addictions:** Nonsmoker, non alcoholic

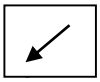
Personal hygiene:

- **Oral Hygiene:**Patient use tooth pastes and brush.
- **Bath:** Patient takes sponge bath on daily basis
- **Diet:**Vegetarian diet
- **No.of Meals Per Day:** patient is complaining about loss of appetite and taking diet only one time in a day.

❖ **KEYS**

- **Male**

Female



Male patient

HEALTH FACILITY NEAR HOME: Private Hospitals

❖ **SOCIOECONOMIC STATUS**

Housing: Pucca house with three room's one kitchen one toilet one lawn.

Water supply: Tap water supply

Sanitation: Irrigation toilets

Income: Farmer but family income 20,000/month

❖ **PERSONAL HISTORY**

- **Hobbies:**Farming
- **Dietary habits:** Healthy
- **Addictions:**Smoker, Alcoholic

Personal hygiene:

- **Oral Hygiene:** Patient use tooth paste and brush to maintain his oral hygiene.
- **Bath:**Patient takes daily sponge bath
- **Diet:**Vegetarian diet
- **No of Meals Per Day:**patient is on RT feed every 2nd hourly
- **Food Preferences:**Vegetarian

- **Food Preferences:**Vegetarian
- **Type of Food:**Organic
- **Fluid:**4-5 glasses per day
- **Tea & Coffee:**3 Cup / day
- **Sleep & Rest:**4-5 hours / day, Insomnia

Elimination

- **Bowel per day:** Regular 1 time
- **Urine frequency:** 5-6/ During day

Mobility & Exercise

- **Exercise/ Activity:** activity is dull due to weakness
- **Joints:** Proper movement

❖ **PHYSICAL ASSESSMENT**

- **Temperature:** 99.4
- **Pulse rate:** 84/min
- **Respiration rate:** 24/min
- **Blood pressure:** 130/80mmHg
- **Weight:**58kg
- **Height:** 5 feet 5 inch
- **Consciousness:** Alert conscious

➢ **Head:**Stitched present over the right side of the forehead.

➢ **Eyes**

- Eye balls - Round, light brown in color
- Sclera - White in color
- Pupils - React to light
- Vision - Normal

- **Type of Food:**Organic
- **Fluid:**2nd hourly RT feed 200 ml
- **Tea & Coffee:**RT feed
- **Sleep & Rest:**4-5 hours / day, Insomnia

Elimination

- **Bowel per day:**Bowel passed in every 3rd or 4rth day.
- **Urine frequency:** 5-6/ During day

Mobility & Exercise

- **Exercise/ Activity:** activity is dull due to weakness and surgical intervention.
- **Joints:** Proper movement

❖ **PHYSICAL ASSESSMENT**

- **Temperature:**101.8
- **Pulse rate:**80/min
- **Respiration rate:**34/min
- **Blood pressure:**90/60mmHg
- **Weight:** 54kg
- **Height:** 5 feet 3 inch
- **Consciousness:** Alert conscious

➢ **Head:** Dry scalp, no dandruff, pediculosis, ulcers

➢ **Eyes**

- Eye balls - Round and black in color
- Sclera - Light yellowish in color
- Pupils - React to light
- Vision - Having problem in seeing far objects

➢ **Ear**

- External ear– Normalin shape
- Internal ear - Hearing capacity is normal

➢ **Mouth**

- Lips - Dry
- Odour- Foul smell present
- Teeth -Dental caries present

➢ **Neck**

- Lymph nodes - Not palpable
- Thyroid gland - Normal
- Range of motion – Normal

➢ **Chest**

- Thorax - Barrel shape of the chest
- Breath sounds - Normal S_1 and S_2 present

❖ **SYSTEMIC EXAMINATION**

❖ **RESPIRATORY SYSTEM:**

- On Inspection: Bilateral chest shape, barrel symmetry
- On Palpation: tenderness not present
- On Percussion: Dull resonant sound present
- On Auscultation: Wheezing & crackle sound
- Respiration rate: 24 breath/min

➢ **Ear**

- External ear – Normal in shape
- Internal ear - Hearing capacity is normal

➢ **Mouth**

- Lips - Dry
- Odor - Foul smell present
- Teeth - Dental caries present

➢ **Neck**

- Lymph nodes - Not palpable
- Thyroid gland - Normal
- Range of motion – Normal

➢ **Chest**

- Thorax - Barrel shaped chest,Breath sounds -Normal S_1 and S_2 present

❖ **SYSTEMIC EXAMINATION**

❖ **RESPIRATORY SYSTEM:**

- On Inspection: Bilateral chest shape, barrel symmetry
- On Palpation: tenderness not present
- On Percussion: Dull resonant sound present
- On Auscultation: Wheezing& crackle sound
- Respiration rate: 22 breath/min

❖ **CIRCULATORY SYSTEM:**

- Pulse: 84 /min.
- Blood pressure: 130/80 mm of Hg.
- On inspection: not any abnormality found
- On palpation: No palpable nodes, tenderness present
- On auscultation: S1 S2 sounds clearly present

❖ **LYMPHATIC SYSTEM:** No palpable lymph nodes

❖ **GASTROINTESTINAL SYSTEM AND NUTRITION/HYDRATION:**

- On inspection: No extra mass, normal skin texture, pale skin tone
- On auscultation: Bowel sound present
- On palpation: no nodes, no solid mass.
- On percussion: Resonant sound present

❖ **URINARY SYSTEM:**

- No burning micturition, no blood in urine, incontinence of urine
-

❖ **REPRODUCTIVE SYSTEM:**

- No any deformity

❖ **INTEGUMENTARY SYSTEM:**

- Dehydrated skin with rashes and cracks, paleness, no redness

❖ **REST AND SLEEP:**

- Sleep pattern is disturbed due to surgical intervention and pain.

❖ **CIRCULATORY SYSTEM:**

- Pulse: 80 /min.
- Blood pressure: 140/90 mm of Hg.
- On inspection: not any abnormality found.
- On palpation: No palpable nodes
- On auscultation: S1 S2 sounds clearly present

❖ **LYMPHATIC SYSTEM:** No palpable lymph nodes

❖ **GASTROINTESTINAL SYSTEM AND NUTRITION/HYDRATION:**

- On inspection: No extra mass, no swelling, normal skin texture, normal skin tone
- On auscultation: Bowel sound present
- On palpation: No tenderness, no nodes, no solid mass,
  soft abdomen
- On percussion: Resonant sound present

❖ **URINARY SYSTEM:**

- No burning micturition, no blood in urine, normal urine-
  Output

❖ **REPRODUCTIVE SYSTEM:**

- No any deformity

❖ **INTEGUMENTARY SYSTEM:**

- Dehydrated skin no rashes and no cracks, no paleness,
  no redness

❖ **REST AND SLEEP:**

- Sleep pattern is disturbed due to surgical intervention and pain.

❖ **PSYCHO-SOCIAL ASPECT:**

- Normal interaction with family and health care staff

❖ **MUSCULO SKELETON SYSTEM:**

- No rashes, lumps, sores, itching or dryness in the limbs.
- Patient is able to perform range of motion but having weakness while performing it.

❖ **NEUROLOGICAL SYSTEM:**

Level of consciousness: E4 V5 M6

Memory-able to recognize past and present events

Recent: intact

Remote: intact

Orientation: patient oriented with time, place, person

Speech: normal speech

Behavior: normal behavior

Signs of Meningeal irritation:

- **Neck pain:** absent
- **Kerning's sign:** absent
- B**udzinski's sign:** absent

❖ **CO-ORDINATION**:

❖ Finger to nose: normal left side, absect in right side

❖ Pronation supination: normal

❖ Heel-Knee Test: not performed

❖ **MOTOR FUNCTION:**

- Normal motor funtions in both leg

❖ **SENSORY FUNCTION:**

- Normal sensory funtions

❖ **PSYCHO-SOCIAL ASPECT:**

- Normal interaction with family and health care staff

❖ **MUSCULO SKELETON SYSTEM:**

- No rashes, lumps, sores, itching or dryness in the limbs.
- Patient is able to perform range of motion

❖ **NEUROLOGICAL SYSTEM:**

Level of consciousness: E4 V5 M6

Memory- able to recognize past and present events

Recent: intact

Remote: intact

Orientation: patient oriented with time, place, person

Speech: slurred speech

Behavior: normal behavior

Signs of Meningeal irritation:

- **Neck pain:** absent
- **Kerning's sign:** absent
- **Brudzinski's sign:** absent

❖ **CO-ORDINATION**:

❖ Finger to nose: normal left side, absect in right side

❖ Pronation supination: normal left side, absect in right side

❖ Heel-Knee Test: not performed

❖ **MOTOR FUNCTION:**

- Normal motor funtions in both leg

❖ **SENSORY FUNCTION:**

- Normal sensory funtions

❖	❖

❖ **VITAL SIGNS PATIENT (A)**

Date	Temperature (Fahrenheit)	Pulse (beat/min.)	Respiration (breath/min.)	Blood Pressure (mm of Hg)
09/08/2023	99.4	84	24	130/80
10/08/2023	98.8	76	24	110/70
11/08/2023	98.6	80	26	100/70
12/08/2023	98.4	78	22	100/60
13/08/2023	98.4	80	22	110/70

❖ **VITAL SIGNS PATIENT (B)**

Date	Temperature (Fahrenheit)	Pulse (beat/min.)	Respiration (breath/min.)	Blood Pressure (mm of Hg)
07/08/2023	98.8	80	22	140/90
08/08/2023	98.2	86	22	130/90
09/08/2023	98.0	76	24	120/80
10/08/2023	98.4	84	22	130/90

❖ **INVESTIGATIONS PATIENT (A)**

S.N	Investigation carried out	Patient Value	Normal Value	Remarks
1.	Hemoglobin	11.88	12-15 g/dl	Decreased
2.	TLC	11,180	4-11000/cumm	Increased
3.	**DLC:** a. Neutrophils b. Lymphocyte c. Eosinophils d. Monocyte e. Basophil	 90 33 04 06 00	 57% 33% 04% 06% 00%	 Increased Normal
4.	Blood sugar random	42.2	60-80 mg/dL	Decreased
5.	Platelet count	2.35	1.50-4.00 lakh/cmm	Normal
6.	Serum uric acid	9.7	2.4-6.0mg/dl	Increased
7.	SGOT	38.6	0-32 IU/L	Increased
8.	SGPT	46.3	0-33 IU/L	Increased
9.	Potassium	3.73	3.5-5.5mmol/L	Normal
10	Sodium	138.7	136-149mmol/L	Normal
11	BILIRUBIN TOTAL CONJUGATED UNCONJUGATED	2.2 1.8 0.4	1.0-1.20mg/dl 0.00-0.2mg/dl 0.00-0.8mg/dl	Increased Normal Normal

❖ **Any special investigation**

- **X -ray:** Mild dilated LA (43mm)
- **USG:** normal sized if liver (14.6cm) with mild increase and mild plural fluid collection in plural cavity
- **ECHO:** LVEF 60-65% approx
- **ECG:** NormalSinus rhythm

❖ **INVESTIGATIONS PATIENT (B)**

S.N	Investigation carried out	Patient Value	Normal Value	Remarks
1.	Hemoglobin	12.6	12-15 mg/dL	Normal
2.	TLC	7,240	4-11000/cumm	Normal
3.	**DLC:** a. Neutrophils b. Lymphocyte c. Eosinophils d. Monocyte e. Basophil	77 15 02 06 00	57% 33% 04% 06% 00%	Increased Normal
4.	RBC COUNT	4.6	4.5-5.5 million/cmm	Normal
5.	Platelet count	2.18	1.50-4.00 lakh/cmm	Normal
6.	SGOT	17.9	0-40 IU/L	Decreased
7.	SGPT	18.7	0-41 IU/L	Decreased
8.	Sodium	140.4	136-149mmol/L	Normal
9.	Potassium	3.7	3.5-5.5mmol/L	Normal
10.	BLOOD SUGAR RANDOM	110.0	80-140mg/dl	Normal

11.	BILIRUBIN TOTAL CONJUGATED UNCONJUGATED	1.4 0.1 0.8	1.0-1.20mg/dl 0.00-0.2mg/dl 0.00-0.8mg/dl	Increased Normal Normal
12.	Serum creatinine	0.7	0.7-1.4mg/dl	Normal

❖ **Any special investigation**

- **X -ray:** few enlarge lymph nodes seen in paratracheal region
- **USG:** No definite abnormality seen
- **ECHO:** LVEF 60% approx
- **ECG:** Normal Sinus rhythm

❖ **MEDICATION:** I/V fluids NS 30 ml/hours

S.N	Name of Drug	Dose	Route	Frequency	Action
1	Inj. Meromac plus	5oomg	I/V	BD	Antibiotic
2	Inj. Panlal	40 mg	I/V	BD	Proton pump inhibitor
3	Tab Sodiumbicarbonate	500mg	Orally	BD	Antacid
4	Tab Heptral	400mg	Orally	BD	Co-enzyme
5	Tab Zyloric	100mg	Orally	OD	Antihyperurecemia
6	Tab Thyronrms	12.5mg	Orally	OD	Antihypothyroidism
7	Tab ZitalK2	500 mg	Orally	OD	Vitamin K2
8	Tab Shelcal	500 mg	Orally	OD	Vitamin D
9	Tab Jupiros	1tab	Orally	HS	anticholesteremic

❖ **MEDICATIONS :** I/V fluids NS 30 ml/hours

S.N	Name of Drug	Dose	Route	Frequency	Action
1	Inj Augmentin	1.2gm	I/V	BD	Antibiotics
2	InjPanlal	40mg	I/V	BD	Proton pump inhibitor
3	InjDeriphyllin	1amp	I/V	BD	Bronchodilator
4	InjNervijan	1amp	I/V	OD	Multivitamin
5	InjPrimacort	100mg	I/V	BD	Corticosteroid
6	Nebulizer Doulin&Budicort	1+1	Inhalation	6hrly	Bronchodilator
7	Spirometer Exercise			2hrly	Helps in improving breathing pattern and strengthen the lungs.

DISEASE CONDITION

❖ DEFINITION

- COPD is also known as chronic obstructive lung disease (COLD), chronic obstructive airway disease (COAD), chronic airflow limitation (CAL) and chronic obstructive respiratory disease (CORD).
- Chronic obstructive pulmonary disease (COPD)is a disease state characterized by airflow limitation that is not fully reversible. COPD may include diseases that cause airflow obstruction (e.g., emphysema, chronic bronchitis) or a combination of these disorders.COPD includes chronic bronchitis and emphysema. Asthma is not considered part of COP due its reversibility.
- Chronic obstructive pulmonary disease (COPD) refers to chronic bronchitis and emphysema, a pair of two commonly co-existing diseases of the lungs in which the airways become narrowed.
- This leads to a limitation of the flow ofair to and from the lungs causing shortness of breath.
- In COPD, less air flows in and out of the airways because of one or more of the following:
  - ➢ The airways and air sacs lose their elastic quality.
  - ➢ The walls between many of the air sacs are destroyed.
  - ➢ The walls of the airways become thick and inflamed.
  - ➢ The airways make more mucus than usual, which tends to clog them.

❖ CAUSES

- Smoking: Long-term smoking is responsible for 80-90 % of cases
- Occupational exposures- exposure to workplace dusts found in coal mining, gold mining, and the cotton textile industry and chemicals such as cadmium, isocyanates, and fumes from welding have been implicated in the development of airflow obstruction.
- Air pollution
- Sudden airway constriction in response to inhaled irritants
- Bronchial hyperresponsiveness, is a characteristic of asthma.
- Genetics-Alpha 1-antitrypsin deficiency is a genetic condition that is responsible for about 2% of cases of COPD. In this condition, the body does not make enough of a protein, alpha 1-antitrypsin. Alpha 1-antitrypsin protects the lungs from damage caused by protease enzymes, such as elastase and trypsin, that can be released as a result of an inflammatory response to tobacco smoke.

❖ PATHOPHYSIOLOGY

Due to etiological factors such as smoke, irritants and carcinogens

⇩

Tissue irritation and destruction

⇩

Inflammation of the mucus membrane

⇩

Lead to airway damage and narrowing

⇩

Alveolar damage and widening

⇩

They lead to increase in alveolar macrophages, CD8 lymphocytes, neutrophils, proteases.

⇩

Airway inflammation leads to Bronchitis

⇩

Alveoli damage leads to Emphysema

⇩

Both leads to COPD

❖ **SIGN AND SYMPTOMS**

BOOK PICTURE	PATIENT (A)	PATIENT (B)
• Chronic cough • Sputum production • Wheezing • Chest tightness • Dyspnoea on exertion • Wt.loss • Respiratory insufficiency • Respiratory infections • Barrel chest- chronic hyperinflation leads to loss of lung elasticity.	• Chronic cough • Sputum production • Wheezing • Chest tightness • Dyspnoea • Respiratory insufficiency • Respiratory infections • Edema in legs and face • Fever • Dehydration	• Chronic cough • Sputum production • Wheezing • Chest tightness • Dyspnoea • Weight loss • Respiratory insufficiency • Respiratory infections • Cough with exploration • Fever

❖ **MAIN TYPES OF COPD**

1) Bronchitis

2) Emphysema

1) **Bronchitis :-** Bronchitis (bron-KI-tis) is a condition in which the bronchial tubes become inflamed. Chronic bronchitis: is a chronic inflammation of the lower respiratory tract characterized by excessive mucous secretion, cough, & dyspnea associated with recurrent infections of the lower respiratory tract.

2) **Emphysema:**It is a complex lung disease characterised by damage to the gas exchanging surfaces of the lung (alveoli) i.e. abnormal distension of terminal bronchioles and destruction of the walls of alveoli.

❖ DIAGNOSTIC EVALUATION

BOOK PICTURE	PATIENT (A)	PATIENT (B)
• History collection • Physical examination • Sample of sputum culture • Chest x-ray • High-resolution CT (HRCT scan) • Pulmonary function test (spirometery) • Arterial blood gases test • Pulse oximeter	• History collection • Physical examination • Sample of sputum culture • Chest x-ray • High-resolution CT (HRCT scan) • Arterial blood gases test • Pulse oximeter • Ultrasonography • CBC • ECHO • ECG	• History collection • Physical examination • Sample of sputum culture • Chest x-ray • High-resolution CT (HRCT scan) • Pulmonary function test (spirometery) • Arterial blood gases test • Pulse oximeter • CBC • ECHO • ECG • USG

❖ PREVENTION

1. **Primary prevention**

- The reduction or avoidance of personal exposure to common risk factors.
- Avoidance of direct and indirect exposure to tobacco smoke is of primary importance.
- Avoiding air pollutants
- Decreased environmental exposure to irritants
- Use of physical barriers such as masks and gown

2. Secondary prevention

- Effective management including smoking cessation, pulmonary rehabilitation and reduction of personal exposure to noxious particles and gases can reduce symptoms, improve quality of life, and increase physical fitness. Further, evidence indicates influenza vaccination is a cost- effective intervention for patients with COPD.
- Smoking cessation is one of the most important factors in slowing down the progression of COPD.
- Even at a late stage of the disease it can reduce the rate of deterioration and prolong the time taken for disability and death.

- **Occupational Change:** Workers may be able to transfer to a significantly less contaminated area of the company depending on circumstances. Often however, workers may need complete occupational change.

❖ MEDICATION

- Long-acting β2 agonist
- ➢ Salmeterol (Seretide), formoterol
- Short-acting β2 agonist
- ➢ Albuterol (ventoin), terbutaline, metaproterenol (metaprel)
- Anticholinergic agents: bronchodilators
- ➢ Ipratropium (atrovert), salbutamol and terbutaline
- Methylxanthines: to increase respiratory muscle strength and prevent respiratory muscle fatigue
- ➢ Theophylline tablets
- Anti-inflammatory agents
- ➢ Corticosteroids (aerochamber spacer inhaler), budesonide, prednisone
- Combination therapy: combination of antichlinergics and beta- agonists
- ➢ Ipratropium and albuterol inhaler through nebulizer
- ➢ Budesonide, formoterol
- Alpha1 antitrypsin
- Oxygen therapy: Helps with shortness of breath
- Nebulization.

❖ DIET

- Fluids and electrolytes should be monitored and replaced diligently.
- Limit Carbohydrate Intake
- Follow a high-protein diet with moderate carbohydrates
- Start by limiting these foods:−Soda−Sweet tea−Candy−Cake and desserts−Starches−Fruits−Milk
- Reduce sodium (or salt) consumed by limiting these foods:− Canned foods &Snack foods, such as chips, pretzels, crackers, and popcorn−Packaged starchy foods, such as stuffing and rice mixes−Cured/luncheon meats and cheeses−Condiments, such as ketchup, barbecue sauce, and soy sauce−Salt and any seasoning with the word “salt” in it
- Protein needs are increased up to 1.2-1.7 grams (g)/day

❖ NURSING MANAGEMENT

- Nursing care for COPD patients focuses on managing symptoms, maximizing function, and teaching skills to enhance self-care. Appropriate referral of patients to community resources helps ensure continuity of high-quality care.
- Be sure to include the patient's family in teaching, as they play a crucial role in care.
- Educate them about COPD Pathophysiology, including how lung changes relate to symptoms.
- Teach patients to observe their usual symptoms and to contact their healthcare provider when symptoms worsen.
- Reinforce the importance of good infection control, such as frequent hand washing and avoiding crowds when upper respiratory infections are prevalent.
- Provide education on prescribed medications, covering proper use of inhaled drugs, proper sequence for taking medications to maximize their effects, and adverse effects.
- Make sure patients know how to determine the amount of inhaled medications left so they can avoid running out.
- Breathing techniques such as pursed-lip breathing help reduce respirations while improving the expiratory phase (by increasing laminar flow of expired air).
- Tell the patient that slow, controlled expiration postpones small-airway collapse, thereby reducing air trapping that occurs with forced expiration.
- Energy-conservation techniques, Advice patients to pace activities, take frequent rests, use assistive devices, and break activities into smaller tasks to help reduce dyspnea development.
- Also help identify the patient's best "breathing time" of the day, and recommend reserving strenuous activities for this period. Finally, stress the need to avoid environmental triggers of dyspnea, including temperature extremes and exposure to air pollution, pollen, cigarette smoke, chemical fragrances, and dust.
- COPD patients commonly have problems maintaining adequate nutritional intake. As the disease progresses, many experience cachexia. Inform patients with reduced nutritional status that the primary-care provider is likely to monitor their hemoglobin and serum albumin levels.
- To improve their nutritional status, advise them to eat small, frequent meals high in protein and avoid gas-producing foods. Instruct them to monitor their weight and food intake. If recommended, advise them to use high-calorie nutritional supplements.

❖ Nursing Diagnosis:

1. Ineffective breathing pattern related to chronic airflow limitation as evidenced by increased respiratory rate
2. Ineffective airway clearance related to bronchoconstriction, increased mucus production, ineffective cough,possible broncho pulmonary infection as evidenced by chronic cough.

3. Impaired gas exchange related to chronic pulmonary obstruction due to destruction of alveolar capillary membrane as evidenced by breathlessness.
4. Activity intolerence related to compromised pulmonary function, resulting in shortness of breath and fatigue, skeletal muscle dysfunction as evidenced by decreased activity.
5. Risk for infection related to compromised pulmonary function, retained secretions and compromised defense mechanisms.
6. Imbalanced nutrition less than body requirements related to increase work of breathing, air swallowing,drug effects with resulting wasting of respiratory and skeletal muscle as evidenced by patients weight.

❖ CONCLUSION

COPD or chronic obstructive pulmonary disease is a progressive disease that makes it hard to breathe. Progressive means the disease gets worse over time. COPD can cause coughing that produce large amounts of mucus, wheezing, shortness of breath, chest tightness and other symptoms. Cigarette smoking is the leading cause of the COPD. Most people who have COPD smoke or used to smoke. Long-term exposure to other lung irritants such as air pollution, chemical fumes, or dust also may contribute to COPD.

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