**Respiratory Case Study**

**Patient Initials \_65/C-F**

**Subjective Data**

A Caucasian female, (65 years old) was involved in a brutal motor vehicle accident about 10 weeks ago. She came to the hospital today complaining of respiratory symptoms such as coughing, wheezing and shortness of breath. She can barely speak fluently without gasping for air. She claims to have been taking a daily dose of albuterol.

**Chief Compliant**

 Difficulty in breathing, coughing and severe wheezing.

**History of Present Illness**

The patient started experiencing symptoms of a frequent asthma attack two months ago. The asthma attacks occurred at least 4 times weekly. About 10 weeks before visiting the hospitals, she was involved in a brutal accident. She then started suffering from a post-traumatic seizure, about 2 weeks after the tragedy. She was put on anticonvulsant phenytoin which helped relieve the symptoms of seizure completely.

**PMH/Medical/Surgical History**

Ever since her early 20s, she has been experiencing symptoms of episodic asthma attacks. About 3 years ago, she realized that she was suffering from mild congestive heart failure and started taking hydrochlorothiazide while on a sodium restrictive diet. Last year, the symptoms of Cognitive Heart Failure became worse. She was given enalapril to help in managing the condition. The drug was well compliant in reliving the symptoms.

**Surgical History**

 Never had any surgery.

**Allergies**

 None that is known.

**Medication List**

•    Theophylline Sustained Release Capsules, of strength 300 mg, PO twice daily, indicated for seizure.

•    Enalapril of strength 5 mg, PO twice daily, indicated for heart failure.

•    HTCZ of strength 50 mg, PO twice daily, indicated for heart failure.

•    Phenytoin Sustained Release capsules of strength 300 mg, PO QHS, indicated for seizure.

•    Albuterol inhaler, when necessary, indicated for asthma.

**Significant Family History**

Her father passed away at 59 years due to kidney failure secondary to high blood pressure.

Her mother passed away at 62 years old from congestive heart failure.

**Social History**

Alcohol use: No

Tobacco use: No

Caffeine use: diet colas and about 4 coffee cups daily.

**Review of Symptoms**

 Positive for coughing, breathing difficulties, wheezing and exercise intolerance. Denies seizures, extremities swelling and headaches.

**Objective Data**

Vital Signs: RR 31, HR 122, BP 171/94, T 96.7 F, Ht 5’ 3” Wt. 145, BMI 25.7

After Albuterol administration

Vital Signs: - RR 18, HR 80, BP 134/79

**Physical Assessment Findings**

* **General:** Well established female, seeming anxious
* **Integumentary:** Pale with no bruising
* **Head:** PERRLA
* **ENT:** Oral cavity without lesions, TM without inflammation.
* **Eyes:** No signs of nystagmus noted
* **Cardiovascular:** normal pulse, heart rate, and cardiac rhythm are normal, S1 and S2, +1 ankle edema, on right.
* **Respiratory:** cough and wheezes
* **Genitourinary:** Perfectly functioning.
* **Gastrointestinal:** non-tender, soft, non-distended, guaiac negative
* **Psychologic:** Anxiety detected.
* **Neurological:** A&O X3, intact cranial nerves

**Laboratory and Diagnostic Test Results**

Actual Value       Reference Values

Cr - 1.2            (0.4-1.1)    mg/dL-women

Cl - 100           (98-108)       mEq/L

K - 4.9     (3.5-4.5)       mg/dL

Na - 134        (134-142)     mg/dL

Glu- 110           (62-110)    mg/dL

AST- 27            (5-40)        U/L

ALT- 24            (5-40)        U/L

Total Chol- 190        (<265)        mg/dL- (women >50 yr).

BUN - 21            (6-25)            mg/dL

Phenytoin- 17            (10-20)        ug/Ml

Theophylline - 6.2     (5-20)        ug/mL

CBC- WNL

Peak Flow Rate– 75 per minute and after– 102 per minute administration of albuterol

Chest X-ray Observation- Blunting of the costophrenic right and left angles

FEV1-1.8L/FVC-3.0L = 60%

(Banfield, & Murphy, 2015)

**Clinical Assessment**

* Diagnosis J45.41 -    Moderate to persistent asthma characterized by (acute) exacerbation
* Diagnosis J44.9 -      Undetermined Chronic obstructive pulmonary disease **(**COPD**)**
* Diagnosis I50.43 -    Acute and chronic systolic and diastolic heart failure

(NCHS et al., 2009)

**Diagnosis: J45.41-    Moderate to persistent asthma characterized by (acute) exacerbation**

**Education**

Asthma is a chronic disease of the respiratory system. Most patients suffering from asthma experience worsened symptoms during physical exercise or cold nights. It is important for asthmatic patients to always keep warm and avoid the precipitating factors that might cause an asthma attack. Some of the triggers for an asthma attack include dusty environment, allergens such as pollen and pet dander, tobacco smoke, extreme emotions, cold air and physical exercise. Some drugs, sulfite foods and other diseases such as gastroesophageal reflux disease (GERD) may also worsen the symptoms of asthma (Mensah, Kiley, & Gibbons, 2018).

**Goals**

Avoiding all the possible precipitating factors for an asthma attack. Identify the best therapeutic alternative for managing the condition. Carry out regular tests to monitor the progress of the disease and the compliance with the prescribed medication. Visit your doctor on a regular basis and always know when to call for a medical emergency (Mensah, Kiley, & Gibbons, 2018).

**Interventions**

Always keep warm while avoiding dusty and congested environment. Avoid stressful situations. Engage in physical exercise on a regular basis while monitoring your respiratory rate, heart rate and blood pressure and maintaining them within normal range. Take your drugs on a daily basis strictly as per the prescription. In circumstances where symptoms persist, seek medical attention immediately (WHO, 2017).

**Evaluate**

Monitor the peak flow rate regularly while keeping the records. Also, observe and record the breathing rate before and after treatment. Visit the hospital on a regular basis, for medical follow up and evaluation of the records that you have been taking, at least in intervals of 2 to 3 weeks (WHO, 2017).

**Diagnosis: I50.43 -     Acute and chronic systolic and diastolic heart failure**

**Education**

Heart failure is a medical condition whereby the myocardia are incapable of pumping adequate blood to encounter the body’s demand. In this condition, fluids unusually accumulate in the body, hence patients are advised to avoid consumption of too much fluid as this may hasten symptoms such as shortness of breath during physical exercise, breathing problems when resting, and a general feeling of fatigue (Harjola et al., 2018). The patient should also avoid a lazy and unhealthy lifestyle habits such as consuming foods with high calorie-content and smoking tobacco.

**Goals**

Adopt the best pharmacological therapy for the management of the symptoms. Observe diet (heart-healthy diet) and avoid a sedentary lifestyle. Maintain the heart rate and blood pressure within the normal range (Harjola et al., 2018).

**Interventions**

Manage the symptoms, reduce daily stress level, limit fluid intake, avoid smoking, adopt a healthy heart diet, monitor BMI, and heart rate and exercise on a daily basis for 30 minutes as tolerated by the body (CDC, 2017).

**Evaluate**

Observe the compliance of the drugs by checking whether the symptoms are being relieved. Monitor and keep records on BMI, heart rate, blood pressure, vital signs and pulse rate on a regular basis. Visit the doctor at least once in every two weeks for follow-up and medical checkup (CDC, 2017).

**Diagnosis: J44.9 -    Undetermined Chronic obstructive pulmonary disease (COPD)**

**Education**

COPD is a serious medical complication with varying effects in different individuals. COPD can occur as a result of uncontrolled or worsened asthma. The clinical presentations of COPD include chronic bronchitis and symptoms of mixed emphysema(Ruppel et al., 2018). Radiographically COPD presents with blunting of the costophrenic angle on the posterior-anterior view and a flattened diaphragm. Blunting of the costophrenic angles are observed on the chest x-ray (Ruppel et al., 2018). This is an indication of mild chronic obstructive pulmonary disease. Some supplementary tests may be necessary with a pulmonologist visit.

**Goals**

Identifying and adopting the best pharmacological therapy for the management of the condition. Alleviate symptoms such as coughing and improve the functioning of the lung while attending to bone health and nutritional status (Ruppel et al., 2018).

**Interventions**

Appropriate pharmacotherapy and use of oxygen therapy. The patient should also avoid risk factors such as air pollutants, cigarette smoking, poor nutrition, stress, crowded living conditions, occupational hazards and passive exposure to smoke. Always regulate breathing pattern and engage in regular exercise as tolerated by the body. Take your drugs strictly as per the doctor’s prescription (WHO, 2017).

**Evaluate**

Counter checking oxygen therapy compliance, bronchial tests follow-up and review of the pulmonary system at least at in 2 to 3-week intervals, analyze the taken records and review the care plan (WHO, 2017).

**References**

Centers for Medicare & Medicaid Services (U.S.), National Center for Health Statistics (U.S.), & STAT!Ref (Online service). (2009). *ICD-10-CM: Clinical Modification*. Baltimore, Md.: Centers for Medicare and Medicaid Services.

United States Department of Health and Human Services, Center for Disease Controls, and Prevention (CDC). (2017). Heart failure fact sheet. Retrieved from https://www.cdc.gov/dhdsp/data\_statistics/fact\_sheets/docs/fs\_heart\_failure.pdf

Ruppel, G. L., Carlin, B. W., Hart, M., & Doherty, D. E. (January 01, 2018). Office Spirometry in Primary Care for the Diagnosis and Management of COPD: National Lung Health Education Program Update. *Respiratory Care, 63,* 2, 242-252.

Harjola, V.-P., Parissis, J., Brunner-La, R. H.-P., Čelutkienė, J., Chioncel, O., Collins, S. P., De, B. D., ... Riley, J. P. (July 30, 2018). Comprehensive in-hospital monitoring in acute heart failure: applications for clinical practice and future directions for research. A statement from the Acute Heart Failure Committee of the Heart Failure Association (HFA) of the European Society of Cardio. *European Journal of Heart Failure, 20,* 7, 1081-1099.

World Health Organization (WHO). (2017). 10 Facts on asthma. Fact file. Retrieved from <http://www.who.int/features/factfiles/asthma/asthma_facts/en.html>

Mensah, G. A., Kiley, J. P., & Gibbons, G. H. (July 20, 2018). Generating evidence to inform an update of asthma clinical practice guidelines: Perspectives from the National Heart, Lung, and Blood Institute. *The Journal of Allergy and Clinical Immunology.*