Methods Section Essay

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Chronic Obstructive Pulmonary Disease (COPD) is basically a diverse group of conditions which is characterized by varying degrees of expiratory airflow limitation. COPD is further related to various combinations of disorders in the small and large airways and to alveolar destruction. Patients who develop COPD have a decreased health condition that is related to the extent of the physiological abnormalities. COPD is a combination of various disorders and among them, chronic bronchitis is the most leading and common health disorder in majority of the world population. This condition is the inflammation of bronchial tubes, which are basically the airways that carry air to the lungs. When inflammation in the bronchial tubes occurs, it is accompanied by cough which normally brings up mucus. This condition is further accompanied by shortness of breathing, chest tightness, and sometimes urination during night times. There are various causes of chronic bronchitis and smoking so far is one of the leading causes of chronic bronchitis. Some other causes of this condition are air pollution, fumes and also exposure to dust for a long period of time. The one key feature of this condition is that it continues for a very long period of time and it does not go away easily but it has various ups and downs throughout the period.

In case of chronic bronchitis the memebranes which are present in the linnings of the bronchi or larger airways of lungs increase in size thus increasing the production of mucous. As the bronchioles also become inflamed thus causing smooth muscles in lung tissue to contract which obstructs the passage of air. In this disorder not only breathing problems occur but at the same time various other health disorders take place like mucosal swelling which results in damaging, high fibrosis of the mucous membrane, hyperplasia of the bronchial mucous glands and goblet cells, hypertrophy of the bronchial glands and other goblet cells along with increase in the thickness of bronchial walls. So these all are some of the factors that play a leading role in the airway blockage in the patients who have chronic bronchitis. When hyperplasia of the bronchial mucous gland and the goblet cells occur then at that time the production of mucous also increases in such patients which then mixes with the purulent exudents in order to form a mucous plug. Hyperplasia is also the cause of increased bronchial wall thickness and due to these conditions gas exchange becomes restricted in the airways which cause breathing difficulty (MACFARLANE & WORBOYS, 2008).

The one main factor due to which this condition is called chronic disorder is because the cough in this condition produces mucus/sputum on the majority of days during at least three continuous months and not less than two consecutive years. One of the leading reasons that M.K got this chronic bronchitis is due to her excessive smoking. It is known that any type of bronchial irritant or allergen regardless of the fact that it is a physical or chemical agent can cause chronic bronchitis but cigarette is the most common cause of bronchial disease accounting for almost 99% of such chronic bronchial cases. Smoking is one of the leading agents which causes this condition and also it causes weight gain in individuals. Smoking also causes an increase in the overall size and the amount of bronchial mucous glands that are specifically responsible for the higher and abnormal production of mucous within the bronchial tree that causes a continuous cough production as well. So keeping in mind M.K's conditions, as she has chronic bronchitis along with diabetes and also primary hypertension the clinical findings that correlate with her conditions are hematocrit being high which also explains secondary polycythemia that shows secondary polycythemia which is relevant with continuous hypoxemia which is a diagnosis of this condition (MACFARLANE & WORBOYS, 2008).

By looking at the lab findings it also helps in understanding her condition further, a decreased PaO2 which is almost lower than 65mm Hg and a higher PaCO2 is another correlation (MACFARLANE & WORBOYS, 2008). The chronic cough and morning mucous having a smoking history and being overweight are also some of the symptoms which are related to chronic bronchitis. As far as the treatment is concerned M.K must stop smoking first and also she needs to take proper rest and drink a lot of water in order to stay hydrated, exercise can also help her to get better with her condition. She needs to walk at least 30 minutes in a day and slowly she needs to increase the duration of walking and the level of her activity. She needs to use inhalers like short-acting B2 antagonists and also inhaled anticholinergic bronchodilators, cough syrups and also some antimicrobial agents to control any type of infection, further treatment can also include low doses of oxygen because her level is lower (“Chronic Obstructive Pulmonary Disease (COPD) - Lung and Airway Disorders,” n.d.).

The one main concern in case of M.K is that she has a history of 22 years of smoking that also accompanied with poor diet, so there are high chances that along with other health disorder she can have a heart failure because as a result of continuous smoking heart failure is one of the major threat that can happen to her. In case of severe smoking, induced bronchitis causes heart failure in the lower right chamber or the ventricle of the heart. This condition is termed as right-sided heart failure or pulmonale. In this condition, the right-sided heart failure or the pulmonale causes fluid like mucous or sputum to accumulate in the body along with the belly and legs area of the individual. Heart failure, in this case, is mainly due to the blocking of bronchi of mucous which makes it difficult to breathe that ultimately causes high blood pressure and then heart failure (Hogg et al., 2004).

According to the American Heart Association 2017 new guidelines the values of M.K blood pressure which are 158/98mm Hg, she is at stage 1 of hypertension, because according to new guidelines the readings between 140/90 and 159/99 are normally indicated as stage 1 hypertension, these values indicate that the force of blood pressure in the arteries is higher than normal, which put the individuals at a higher risk of various other health complications like heart attack, stroke, and heart failure. Blood pressure in this range can damage other body organs as well including both the heart and kidneys and patients who already have chronic conditions in these organs the situation gets even worse. In this particular case, M.K is taking medications to control her blood pressure which are Lasix and Lotensin so the diuretics will help to normalize the blood pressure of the individual by increasing the removal of sodium and also fluid from the blood into the urine with the help of kidneys. Diuretics also help to decrease the blood pressure by increasing the dilation of the blood vessels. The inhibitors of ACE will also help to decrease the blood pressure by decreasing the production of angiotensin II which is a potent constrictor of all the blood vessels (Fabbri, Luppi, Beghé, & Rabe, 2008). These medications are normally recommended for all the patients who have any kidney damage, heart failure or even diabetes. If an individual has high blood pressure then that puts the person at high risk of heart failure and stroke which are some of the leading death causes in the United States of America. There are about 10 in about 75 million American adults who constitutes about 32% of the overall population have higher blood pressure which is almost 1 in 3 individuals. The impact of this particular disease on US population is quite grave and it costs approximately 46$ billion each year to the US government this amount constitutes all the expenses including the healthcare costs, the medicines involved and also the cost when an individual misses working days, so overall this particular health condition is posing many risks to the US government (Fabbri, Luppi, Beghé, & Rabe, 2008).

According to the lipid profile of M.K, there are some other health risks she may have and coronary heart disease is one such health risk. Cholesterol is needed for making steroid hormones and bile, it is also an important element of the cell membranes. In case if the individual is unable to make enough cholesterol then the liver helps to make that cholesterol, but most people intake excessive cholesterol from their diet which results in high cholesterol level. Total cholesterol level has measured the sum of high-density lipoproteins, low density, and lower density lipoproteins. HDL with lower levels can increase the danger of heart disease and they are linked with diets which are high in saturated fats refined CHO, sugars, and fructose corn syrups. HDL level is also reduced by inactivity, obesity, and smoking, elevated LDL concentration is due to less physical activity, diabetes type II and also obesity. There are some other medications which should be recommended like certain beta blockers which will slow down the heart rate and also decrease the blood pressure, which will ultimately reduce the demand of heart for more oxygen. Aspirin is also helpful in decreasing the tendency of the blood to clot which can also prevent obstructions of the coronary arteries. Other types of medications also include cholesterol-modifying medications which help to reduce the level of cholesterol in the blood or the bad cholesterol, these medicines prevent the deposition of any primary material on the coronary arteries. Other drugs can also include niacin and statins.

The HbA1c value of M.K is 7.3%, patients who have <7.3% the postprandial glucose makes the greatest contribution in the overall hyperglycemia but if HbAc1 is >7.3% then the fasting glucose becomes dominant in such patients (Sherwani, Khan, Ekhzaimy, Masood, & Sakharkar, 2016). By looking at these values anti-diabetic treatments should be started and also second-line therapies should be intended at decreasing the fasting hyperglycemia according to the level of HbA1c that either that is lower or higher 7.3%. the normal value of hemoglobin in people who are non-diabetic the value is between 4-5.9%, while people who have diabetes and have poor control on glucose their value is 7%. The value has a negative impact on the health of M.k she is faced with major health risks like ischemic heart disease this can also impair her kidney functions in the long run. It can also accelerate the heart atherosclerosis along with the brain arteries so for that she needs treatment.

Chronic Bronchitis is a deadly health condition which is accompanied with various other health disorders. The worse thing about this condition is that it does not go away with time it stays for a longer period of time and if the patient has a smoking history then the condition only gets worse. There are certain health conditions which are interlinked and chronic bronchitis, asthama, heart failure and obesity are some of the conditions which effects one another. So if a patient has this condition then it is very important that along with medications the person must focus on his/her diet and physical activity because only then he/she can overcome the risk factors that are there because of these diseases

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