

Blood pressure woes and which electrolyte



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Blood Pressure Woes and Which Electrolyte? Chronic Renal/Kidney Failure

Chronic Kidney failure is a disorder of the kidney which results from gradual malfunction of the kidney. Initially, there may be no signs of this disorder until the end-phase the disease is attained. This phase is where the kidney is unable to excrete unwanted materials from the body hence making waste to be withheld in the body. The major cause of this disorder is high blood pressure and diabetes.

George has been having high blood pressure for five years, has been letting out a lot of urine and tremendous reduction of body mass. Acute kidney failure occurs within a short time and results to loss of urine. Therefore, George tested positive for chronic renal failure. The red blood cells are abnormally low.

Normal red blood cells (RBC) in men should be between 4.7 and 6.1 million cells/mcl. This sample had a low count of 3.8 million cells/mcl which is below ordinary level. There is probability that some red blood cells have been discharged with the urine. Also, regular hemoglobin count in male is between 13.8 to 17.2 gm/dL. The count of 11.0 gm/dl is lower than normal and could be as a result of excessive loss of water due to frequent urination. The usual Glomerular Filtration Rate (GFR) in a human body is around 90ml/min but in George's case it was 45ml/min which is low. Protein which is supposed to be 80mg/dl per day is abnormally high (3g/24hr), which is a characteristic of high blood pressure.

The operational nephrons in the body determine the level of filtration that takes place in the kidney hence influencing the level of GFR. Considering the level of GFR has dropped from a usual average of 90 to current 45ml/min, the percent of nephron decline is $\frac{45}{90}$ of one hundred. This depicts a

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decline of 50% of the nephrons. At the end phase of kidney failure, the level of GFR goes down to 15 or extreme of zero ml/min. Also, the rate of urination declines to almost zero and all nephrons becomes nonfunctional hence the patient may have to undergo kidney transplant.

George should manage sugar in the blood, and reduce level of blood pressure. For example, this can be achieved avoiding smoking and taking physical exercise regularly. This condition can be healed if George implements doctor's advice and avoid taking food which is rich in cholesterol.

Question 2: Congestive Heart Failure

Congestive heart failure is a condition where the rate of the heart beat is lower than usual. This condition may result to insufficient " oxygen and nutrients" in the body. Consequently, the kidney may react by withholding body fluid and salt resulting to clogging of the body, hence the term " congestive heart failure."

Betty's examination revealed lower than normal potassium electrolyte in the body. She had a count of 3. 0 milliEquivalents/liter (mEq/L) of potassium while the usual potassium level is supposed to between 3. 5 and 5. 0mEq/L. The retention of water in her body was due to lack of balance between the electrolytes and especially between potassium and sodium.

She can increase the uptake of foods rich in potassium and low cholesterol. These may include raisins, mushrooms, and soya beans and so on. These will increase potassium without increasing cholesterol which would otherwise result to high blood pressure.

The doctor may recommend her to use potassium supplement so that she can raise her potassium level. However, taking excess of this drug could

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result to other health complications like vomiting, stomach disorder and diarrhea.

Furosemide drug is recommended because it removes surplus fluid withheld in the body as well as lowering high blood pressure. This drug could facilitate kidney to convert surplus fluid into urine which is then discharged from the body. This would also help her ease pain in the body.

Electrolytes produce electrical signals which activate the heart hence making the whole body to operate normally. When they are at balance, the entire body cells performs their functions ordinarily hence maintaining body in a health state.

Reference

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