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Final Paper

Anatomy & Physiology

Alkalosis

Our bodies are designed to operate within certain parameters. This includes our blood. Our blood maintains a very specific pH which is between 7.35 to 7.45. Normally, blood stays around 7.4. This means that by nature human blood is slightly basic (alkaline). Once blood leaves this pH range the body begins having problems. If the pH balance of blood goes down, becoming more acidic, it is called acidosis. If the pH balance of blood goes up, becoming more basic, it is called alkalosis. Alkalosis actually isn't considered a disease it's considered to be a state because it isn't caused by bacteria or viruses, but rather a chemical change.

Alkalosis is caused by either a drop in acid or a rise in alkaline, causing the pH to become unbalanced. Alkalosis is classified into two categories, both of which lead to the same thing. These categories are respiratory alkalosis and metabolic alkalosis. Respiratory alkalosis is caused by hyperventilation. Hyperventilation is when the tidal volume eliminates carbon dioxide faster than the body can produce it. This leads to a reduced concentration of carbon dioxide being absorbed into the blood, causing the pH to rise. Metabolic alkalosis is caused primarily by two different ways. The first is through excessive vomiting. This causes the body to lose large amounts of acid. The other way is through severe dehydration or large intake

of alkaline substances. There are also certain diseases which have alkalosis as a symptom.

The symptoms and diagnosis of alkalosis is quite straight forward. The symptoms include irritability, muscle twitching/cramps, and tingling in fingers, toes, and around the lips. These symptoms can change depending on the person and severity. Some people may have no symptoms at all while some cases may actually cause severe, painful muscle spasms. Testing for alkalosis is quite simple and can be done one of two ways. Either with a urine sample or a blood sample. Once the sample is obtained the doctor the pH is measure, carbon dioxide (acid), and bicarbonate in the blood. If the pH balance is above 7.45, alkalosis is present.

Treating alkalosis is quite simple. You simply need to treat the cause. With respiratory alkalosis there are two main things which need to be done. First, if the patient is still hyperventilating, you need to calm them down and reduce their breathing. You can also have them breathe into a bag to keep carbon dioxide in the body. To treat metabolic alkalosis you need to first treat what is causing the loss of acid, generally stopping the vomiting. Once this is done you can begin replacing water and electrolytes. In very severe cases you can also give a dilute acid intravenously to lower the pH. While alkalosis itself can be easily tested for and treated, it's important to remember that it is typically a symptom of a different problem that may be much more severe and requires immediate attention. Often times handling the true issues will by itself cure the alkalosis.