

Pathophysiology- acidosis and alkalosis flowcharts and tables

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Acidosis and Alkalosis Flowcharts and Tables ACIDOSIS AND ALKALOSIS

FLOWCHARTS AND TABLES Alkalosis and acidosis are terms that are used for the description of abnormal conditions caused by excess alkali or acid in the blood. The body pH needs to be maintained at between 7.35 and 7.45, in order to ensure that the body's metabolic functions are running properly and that the tissues are getting the correct amount of oxygen. Acidosis can be described as excessive acid levels in the blood, which result in the drop of pH below 7.35 (Bullock, 2006). Alkalosis, on the other hand, is an excessive level of base present in the blood, which results in pH rising past 7.45. The vital organs used in regulating pH, in the blood, are the kidneys and the lungs. Lungs are used for the removal of carbon dioxide. Heightening or lowering the rate of respiration causes alteration in carbon dioxide amounts exhaled which can have an instantaneous effect on levels of blood pH. The malfunction of this regulation results in respiratory acidosis or alkalosis. Kidneys, on the other hand, remove acids from the urine while acting to regulate bicarbonate levels present in the blood. Variations in the concentration of HCO_3^- cause acid base changes at a much slower rate than does CO_2 . It could even take days at the most to have any effect. The malfunction of this regulatory mechanism leads to metabolic acidosis or alkalosis (Jindal, 2011).

1. How the Acid-Base Imbalance in the Body Can Lead To Acidosis and Alkalosis

a) Acidosis

(Bullock, 2006)

b) Alkalosis

(Bullock, 2006)

2. Use tables to:

a) Differentiate between respiratory and metabolic acidosis

Primary disorder

Defect

pH effect

Compensatory response

Metabolic acidosis

Decrease in HCO_3^-

Loss of bicarbonate ions or gain in hydrogen ions

Decrease

Respiratory alkalosis

Decrease in levels of PaCO_2

Respiratory acidosis

Increase in PaCO_2

Retention of carbon dioxide

Decrease

Increase in HCO_3^-

Metabolic alkalosis

b) Differentiate between respiratory and metabolic alkalosis

Primary disorder

Defect

pH effect

Compensatory response

Metabolic alkalosis

Increase in levels of HCO_3^-

Loss of hydrogen ions, H^+

Gain in bicarbonate ions, HCO_3^-

Increase

Respiratory acidosis which increases the levels of PaCO_2

Respiratory alkalosis

Decrease in levels of PaCO_2

Washout of Carbon dioxide, CO_2

Increase

Metabolic acidosis which results in decrease of HCO_3^-

(Bullock, 2006)

References

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Retrieved from: <http://smc-asu-ed.blogspot.com/2008/03/acidosis-flow-chart.html>

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