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## Approach to acid base disorders

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Acid base disturbances are common and sometimes they are confusing also. Because of its reputation for complexity, acid base analysis intimidates many physicians. In this session, I will present a practical step wise approach to interpret disturbances in blood gas and electrolyte values. I will explain all acid base disorder with taking metabolic acidosis as an initial example. As we know that acid base disorders are of two types, simple acid base disorder and mixed acid base disorders. We will learn to differentiate them by understanding law of compensation, assessing a patient's acid base status begins with the measurement of arterial pH, partial pressure of carbon dioxide and bicarbonate. We will also discuss the use of anion gap and delta ratio for diagnosis of mixed acid base disorders and will practice some examples of acid base disorder. We will also discuss acid base disorder with normal pH and pathology of normal gap acidosis. If we have a patient of metabolic acidosis, first we have to decide that whether this acidosis is because of retention of CO<sub>2</sub> or because of loss of bicarbonates, in other words, respiratory or metabolic acidosis. To answer this, we should look towards the direction of change of CO<sub>2</sub> with pH, if they are in same direction, it is metabolic disorder and when they are in opposite direction, it is respiratory disorder. Second important thing is to decide that there is only one disorder or more than one? If compensation is as predicted, there is only one disorder and if compensation is not as predicted, there must be second or third disturbances. Further calculation of anion gap in acidosis will provide us clue that loss of bicarbonates is due to consumed neutralizing pathological acids or they lost via kidney or GIT.

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