EMMANUEL-ANTHONY HANNAH

17/MHS01/114

BIOCHEMISTRY ASSIGNMENT

1. Define the following terms.
   1. Ketogenesis;

It is the biochemical process through which organisms produce ketone bodies through breakdown of fatty acids and ketogenic amino acids. This process supplies energy under circumstances such as fasting or caloric restriction to certain organs, particularly the brain, heart and skeletal muscle.

* 1. Ketonaemia;

Is a condition marked by an abnormal increase of ketone bodies in the circulating blood Normally, when blood glucose decreases for more than a couple of hours, ketonemia develops in response to decreased insulin and the brain will use ketones as an alternative endogenous fuel. The accumulation of ketones is often the cause of acidosis and coma in diabetics.

* 1. Ketonuria;

Ketonuria is a medical condition in which ketone bodies are present in the urine. It is seen in conditions in which the body produces excess ketones as an indication that it is using an alternative source of energy. It is seen during starvation or more commonly in type 1 diabetes mellitus.

1. What are the consequences of ketosis?

Ketosis is a metabolic state in which fat provides most of the fuel for the body (ketogenesis). It occurs when there is limited access to glucose (blood sugar), which is the preferred fuel source for many cells in the body. Ketosis is most often associated with ketogenic and very low-carb diets. Consequences; For people with diabetes, ketosis can trigger a dangerous condition called ketoacidosis. This occurs when the body stores up too many ketones ( acids produced as a byproduct of burning fat) and the blood becomes too acidic, which can damage the liver, kidneys, and brain. Left untreated, it can be fatal. Ketoacidosis has also been seen in people without diabetes  who were following low-carb diets, although this complication is quite rare. Symptoms of ketoacidosis include a dry mouth, frequent urination, nausea, [bad breath](https://www.health.com/weight-loss/keto-breath), and breathing difficulties; if you experience these while following the keto diet, check in with a doctor right away.

1. Write concisely on the management of ketoacidosis?

Ketoacidosis is a serious diabetes complication where the body produces excess blood acids (ketones).This condition occurs when there isn't enough insulin in the body (in diabetes mellitus patients, usually type 1), It can be triggered by infection or other illness. It can also happen in people with out the condition (diabetes mellitus).

Symptoms of ketoacidosis; Excessive thirst, Frequent urination, Nausea and vomiting, Abdominal pain, Weakness or fatigue, Shortness of breath, Fruity-scented breath Confusion. More-specific signs of diabetic ketoacidosis which can be detected through home blood and urine testing kits include:

* High blood sugar level (hyperglycemia).
* High ketone levels in your urine.

Diabetic Ketoacidosis can be prevented by;

1. Commit to managing your diabetes; Make healthy eating and physical activity part of your daily routine. Take oral diabetes medications or insulin as directed.
2. Monitor your blood sugar level; You might need to check and record your blood sugar level at least three to four times a day more often if you're ill or under stress. Careful monitoring is the only way to make sure your blood sugar level remains within your target range.
3. Adjust your insulin dosage as needed; Talk to your doctor or diabetes educator about how to adjust your insulin dosage in relation to your blood sugar level, what you eat, how active you are, whether you're ill and other factors. If your blood sugar level begins to rise, follow your diabetes treatment plan to return your blood sugar level to your target range.
4. Check your ketone level; When you're ill or under stress, test your urine for excess ketones with an over-the-counter urine ketones test kit. If your ketone level is moderate or high, contact your doctor right away or seek emergency care. If you find anything higher than trace levels of ketones you may need to take more insulin.

If you detect ketones in your blood or urine, general treatment guidelines include drinking plenty of water or other calorie-free fluids to help flush ketones out of the body, taking insulin to bring your blood glucose level down, and rechecking both your blood glucose level and ketone level every three to four hours. If after a few hours and the blood glucose and ketone levels are not normalized or do not show a decrease in level the patient is required to go to the hospital.

At the hospital the patient is probably going get insulin through an IV to bring the ketones down and fluids to get hydrated and bring blood chemistry back into balance. If ketoacidosis is not treated the individual could pass out, go into a coma, and possibly die. An outline of the treatment;

* Correction of fluid loss with intravenous fluids.
* Correction of hyperglycemia with insulin.
* Correction of electrolyte disturbances, particularly potassium loss.
* Correction of acid-base balance.
* Treatment of concurrent infection, if present (that is when the ketoacidosis is triggered by an infection).