

Diabetic ketoacidosis v hyperglycemic hyperosmolar state



**ASSIGN
BUSTER**

Diabetic Ketoacidosis and Hyperosmolar Hyperglycemic Nonketotic Coma

Insulin is a hormone that is produced in the pancreas which aids the cells in converting glucose into energy by facilitating the rapid uptake of glucose by the muscles, adipose tissue and liver. A high-carbohydrate meal would signal the production of insulin to begin the conversion process. When the pancreas is unable to produce enough insulin, glucose is retained in the blood, leaving the muscles and other tissues deprived of glucose and thus result to a disease called diabetes. Hyperglycemia, or high glucose levels, would in the long run cause nerve damage, which would lead to complications such as heart disease, stroke, kidney diseases, blindness, nerve problems, gum infections and amputation. There are three main types of diabetes: Type 1, Type 2 and gestational diabetes. Type 1 diabetes is formerly known as juvenile diabetes, simply because it is usually diagnosed in children and young adults. Type 2 diabetes, or adult-onset diabetes, is the most common form of diabetes as it can develop at any age. The failure of the muscles and liver to use insulin properly forces the pancreas to produce more insulin until such time that it can no longer cope with the demand and lose its ability to secrete insulin. Gestational diabetes is the kind that is associated with a woman's pregnancy (" Diagnosis of Diabetes").

Insulin deficiency may also cause the buildup of an acid known as ketone in the blood. Ketoacidosis, or having high levels of ketone in the blood, can poison the body as it disrupts the chemical balance in the blood and may lead to a diabetic coma or even death. It passes up in the urine and is the warning sign that insulin levels are very low and that ketone levels are high.

It is most commonly found in people with type 1 diabetes. Some of the

symptoms include: dry mouth, frequent urination, hyperglycemia, constant
<https://assignbuster.com/diabetic-ketoacidosis-v-hyperglycemic-hyperosmolar-state/>

feeling of tiredness, dry/flushed skin, nausea, vomiting, abdominal pain, difficulty in breathing, fruity odor on breath and confusion. While the common cold or flu can bring about ketoacidosis, some other causes may be insufficient insulin in the body which would lead to the breaking down of fats for energy, insufficient food intake, and low blood glucose (“Ketoacidosis”).

Hyperosmolar hyperglycemic nonketotic coma (HHNC) is a condition that is more commonly found in Type 2 diabetes patients. It is characterized by decreased consciousness, extreme dehydration, and extremely high blood glucose levels, which is not accompanied by ketoacidosis (“Diabetic Hyperglycemic Hyperosmolar Coma”). During a period of hyperglycemia, the kidneys would compensate by excreting the excess glucose in the urine, but when there is not much water in the body, the kidney would tend to conserve water, resulting to a high level of glucose and the need for more water. Hyperosmolarity, on the other hand, is condition wherein the blood is teeming with electrolytes such as sodium, potassium, and phosphates which usually attract water into the bloodstream. However, because of dehydration, the kidneys’ water conservation only leads to further glucose retention in the blood, thereby increasing the need for more water. In both diabetic ketoacidosis (DKA) and HHNC, infection remains the most important precipitating factor. Other precipitating factors for HHNC include silent myocardial infarction, cerebrovascular accident, mesenteric ischemia, acute pancreatitis, and use of medications such as steroids, thiazide diuretics, calcium-channel blockers, propranolol and phenytoin (Chiasson). Aside from the fact already stated earlier that DKA affects people with type 1 diabetes and HHNC affect mostly people with type 2 diabetes, HHNC was also found to be more common among elderly diabetic obese patients with no access to

<https://assignbuster.com/diabetic-ketoacidosis-v-hyperglycemic-hyperosmolar-state/>

water and DKA in younger lean people. Other differences in clinical presentation include the fact that DKA develops within a day or so while HHNC can take one day or weeks to get full blown. Polyuria and polydypsia can also be observed both in DKA and HHNC, although polydypsia may not manifest in elderly HHNC patients. Both may present abdominal pain with nausea and vomiting because of the acidosis or decreased mesenteric perfusion which may be mistaken for an acute surgical abdomen. Rapid and deep respiration (Kussmaul-Kien respiration) with breath acetone is a characteristic of DKA but not HHNC. Dehydration is also more pronounced in HHNC although it may also be present in DKA, and because both conditions are usually accompanied by hypothermia, a normal or elevated body temperature may signify an underlying infection (Chiasson). Speech impairment, loss of feeling or function of muscles and dysfunctional movement are also symptoms that may be associated with HHNC. Treatment of both DKA and HHNC usually involve adequate correction of dehydration, hyperglycemia, ketoacidosis and electrolyte deficits. Any comorbid factors should also be considered and treated accordingly. Both DKA and HHNC are medical emergencies thereby requiring prompt medical attention and hospital admission.

Works cited

Chiasson, Jena-Louis, et al.. " Diagnosis and Treatment of Diabetic Ketoacidosis and the

Hyperglycemic Hyperosmolar State." CMAJ 168. 7April 1, 2003 24 Aug 2006

.

" Diabetic Hyperglycemic Hyperosmolar Coma." MedLine Plus. Aug. 6, 2004.
<https://assignbuster.com/diabetic-ketoacidosis-v-hyperglycemic-hyperosmolar-state/>

U. S. National

Library of Medicine and National Institutes of Health. 25 Aug 2006

.

" Diagnosis of Diabetes." National Diabetes Information Clearinghouse. Jan.

2005. National

Institute of Diabetes and Digestive and Kidney Diseases. 24 Aug 2006

.

" Ketoacidosis." American Diabetes Association. American Diabetes

Association. 24 Aug 2006

.

Sagarin , Mark and Andrew McAfee. " Hyperosmolar Hyperglycemic

Nonketotic Coma."

eMedicine from webmd. Jan. 13, 2005. WebMD. 24 Aug 2006

.