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Diabetic Ketoacidosis Associated with Lipodystrophy

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Abstract: *Diabetes Ketoacidosis associated with lipodystrophy is abnormal changes occurs in subcutaneous fat tissues usually by Congenital (present at birth) or acquired.*

It commonly associated with Repeated insulin administration on any site leads to hardening of subcutaneous tissues or excessive proliferation of tissue which may cause reduced absorption of insulin and leads to hyperglycemic state with severe metabolic acidosis such as Diabetes Ketoacidosis with lipodystrophy.

Key Words: *Diabetes Ketoacidosis, lipodystrophy, proliferation*

1. INTRODUCTION

Diabetes mellitus is a metabolic disorder of carbohydrates , protein and fat due to an absence or inadequate amount of insulin production ,utilization and resistance . Normally a certain amount of glucose present in the blood and it used as energy and its regulated by insulin from the pancreas .

There are several different types of diabetes , but main two types of diabetes mellitus are type I and type II diabetes . Type 1 is an autoimmune disease which attacks insulin-producing cells and the pancreas produces little or no insulin. Type 2 involves insulin resistance or insufficient insulin production. The main goal of management of diabetes mellitus is to regulate the glucose level in the blood and proper functioning of insulin in the body . Management of type I diabetes mellitus include insulin therapy and type II diabetes is managed by life style modifications ,monitoring and medications . Life

People with diabetes mellitus need regular screening , follow up and regular management. Uncontrolled diabetes mellitus causes many short term and long term complications like cardiovascular diseases, diabetic neuropathy and unhealed foot ulcers , diabetic nephropathy, diabetes ketoacidosis, diabetic retinopathy and high risk for repeated infections .Diabetes Ketoacidosis associated with lipodystrophy is a rare ,but serious life threatening complication of diabetes mellitus.

2. Diabetes Ketoacidosis

Diabetes Ketoacidosis is a serious complication of diabetes mellitus. In Diabetes Ketoacidosis , insulin deficiencies causes break down of fat instead of glucose which produces ketone .Ketone Bodies have acidic nature , it may accumulate in blood and causes metabolic acidosis.

3. Diabetes Ketoacidosis associated with lipodystrophy

Diabetes Ketoacidosis associated with lipodystrophy is abnormal changes occurs in subcutaneous fat tissues usually by Congenital (present at birth) or acquired.

It commonly associated with Repeated insulin administration on any site leads to hardening of subcutaneous tissues or excessive proliferation of tissue which may cause reduced absorption of insulin and leads to hyperglycemic state with severe metabolic acidosis such as Diabetes Ketoacidosis with lipodystrophy.

4. Causes of Diabetes Ketoacidosis associated with lipodystrophy

Congenital (present at birth) or acquired. Acquired lipodystrophy can be associated with autoimmune diseases, medications administration errors such as repeated insulin administration on same site and improper insulin injection techniques.

5. Clinical features of Diabetes Ketoacidosis associated with lipodystrophy

- Hyperglycemia occur by insulin resistance or reduced insulin absorption
- Fat loss in specific area
- Acanthosis Nigricans
- Increased Thirst and Frequent Urination
- Fruity Breath, Nausea ,Vomiting and Abdominal Pain by metabolic abnormality and ketosis
- Lethargy and Confusion
- Metabolic acidosis causes electrolyte imbalance which may leads to seizures
- Loss of Consciousness: In severe cases, DKA can lead to a coma.

6. Diagnosis of Diabetes Ketoacidosis associated with lipodystrophy

1. **Physical examinations –** Identify muscle wasting , tissue hardening and colour changes on injection sites
2. **Blood Gas Analysis, Electrolyte Panel, And Ketone Levels. Lab finding are :**

- Blood glucose level higher than 250 mg/dl
- Plasma pH less than 7.3
- Plasma bicarbonates less tha 15 mEq/L
- Presence of serum ketones
- Abnormal level of serum sodium, potassium and chloride
- Abnormal liver enzymes
- Presence of urine ketones and glucose

7. Management of Diabetes Ketoacidosis associated with lipodystrophy

Diabetes Ketoacidosis associated with lipodystrophy primarly check the circulation , breathing and airway .if needed, intubate the patient ,note oxygen saturation and administered oxygen Fluid electrolyte management helps to correct the dehydration and electrolyte imbalance . Patient need continuous insulin infusion with hourly monitoring of blood glucose level. Continuosly monitor the urine out put to know about kidney function

Proper administration of insulin will reduces the chance of Diabetes Ketoacidosis associated with lipodystrophy like rotating the injection site , avoid damaged site at least 6 months , so it can resolve the tissue damage .regular monitoring of blood glucose level .

8. CONCLUSION

Diabetes Ketoacidosis associated with lipodystrophy is a emergency situation, but it can preveted by careful management such as correct administration and proper absorption of insulin. Blood sugar level should be within normal if patient with the history of co morbidities

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