



PHD ASSISTANCE

YOUR TRUSTED MENTOR SINCE 2001

THE RELATIONSHIP BETWEEN CLINICAL AND BIOCHEMICAL FINDINGS WITH DIABETIC KETOACIDOSIS

An Academic presentation by
Dr. Nancy Agnes, Head, Technical Operations, Phdassistance
Group www.phdassistance.com
Email: info@phdassistance.com



TOPIC DISCUSSION

- Introduction
- What is the critical cause of DKA?
- What are the clinical outcomes of DKA patients?
- What are the biochemical parameters related to the DKA condition?
- Future Directions



Contd...

INTRODUCTION

- Diabetes is a carbohydrate metabolism ailment that has a number of distinct causes. Persistent high blood sugar and problems in the metabolism of carbohydrates, fats, and proteins are significant characteristics.
- It is because of a deficiency in insulin action or insulin production in the body. Protracted consequences of diabetes include retinopathy (cause blindness), nephropathy (cause renal failure), and neuropathy (causes autonomic dysfunction and postural hypotension, sexual dysfunction etc.).
- [Diabetic ketoacidosis \(DKA\)](#) is the consequence of diabetes linked with a life-threatening condition in uncontrollable diabetes (Almazrouei, R.,2023).

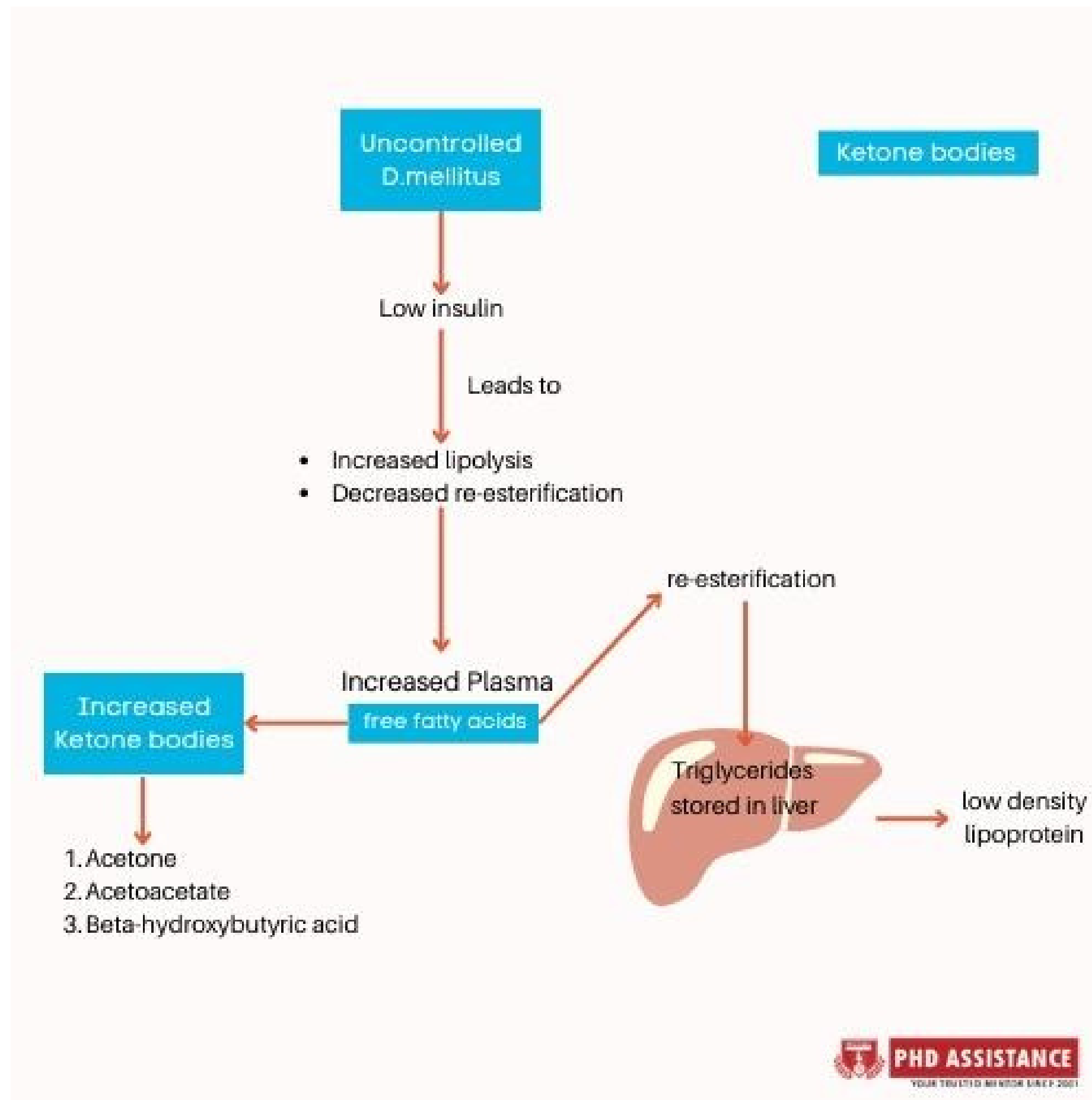


Contd...

- Because of the partial or entire absence of insulin and the overflow of the defend hormones glucagon, gluconeogenesis and the synthesis of ketone bodies are increased in the hepatic cells during DKA. This is a result of the fact that glucagon is a regulatory hormone.
- A dramatic increase in the passage of free fatty acids from adipocytes, a necessary aspect of a reduced insulin limit, brings on ketosis. This is coupled with an increase in the biosynthesis pathway of ketone bodies in the hepatocytes, which is brought about by excessive glucagon concentrations.
- Together, these two factors lead to a rise in the production of ketones, which leads to ketosis. The activation of carnitine palmitoyltransferase I that results from the interaction of these two factors ultimately results in ketosis (Farooq, U.,2022).

WHAT IS THE CRITICAL CAUSE OF DKA?

- DKA occurs when the signalling from the body's insulin is so inadequate that it causes the following conditions:
 1. Blood sugar cannot enter cells that may be utilised as an energy source.
 2. The hepatic tissue makes up a remarkable quantity of blood sugar.
 3. The body cannot keep up with the rate at which fat is broken up.
- The hepatic system is responsible for converting fats into a resource known as ketones. The hepatic cell generally creates ketones if the body breaks down fat during fasting. Ketone bodies are generally utilised by muscle tissue and the cardiac system. Ketones can be lethal since they make the blood additional acidic if generated excessively and allowed to accumulate in the bloodstream. The condition is developed called [Ketoacidosis](#) (Chung, J. Y., 2022).



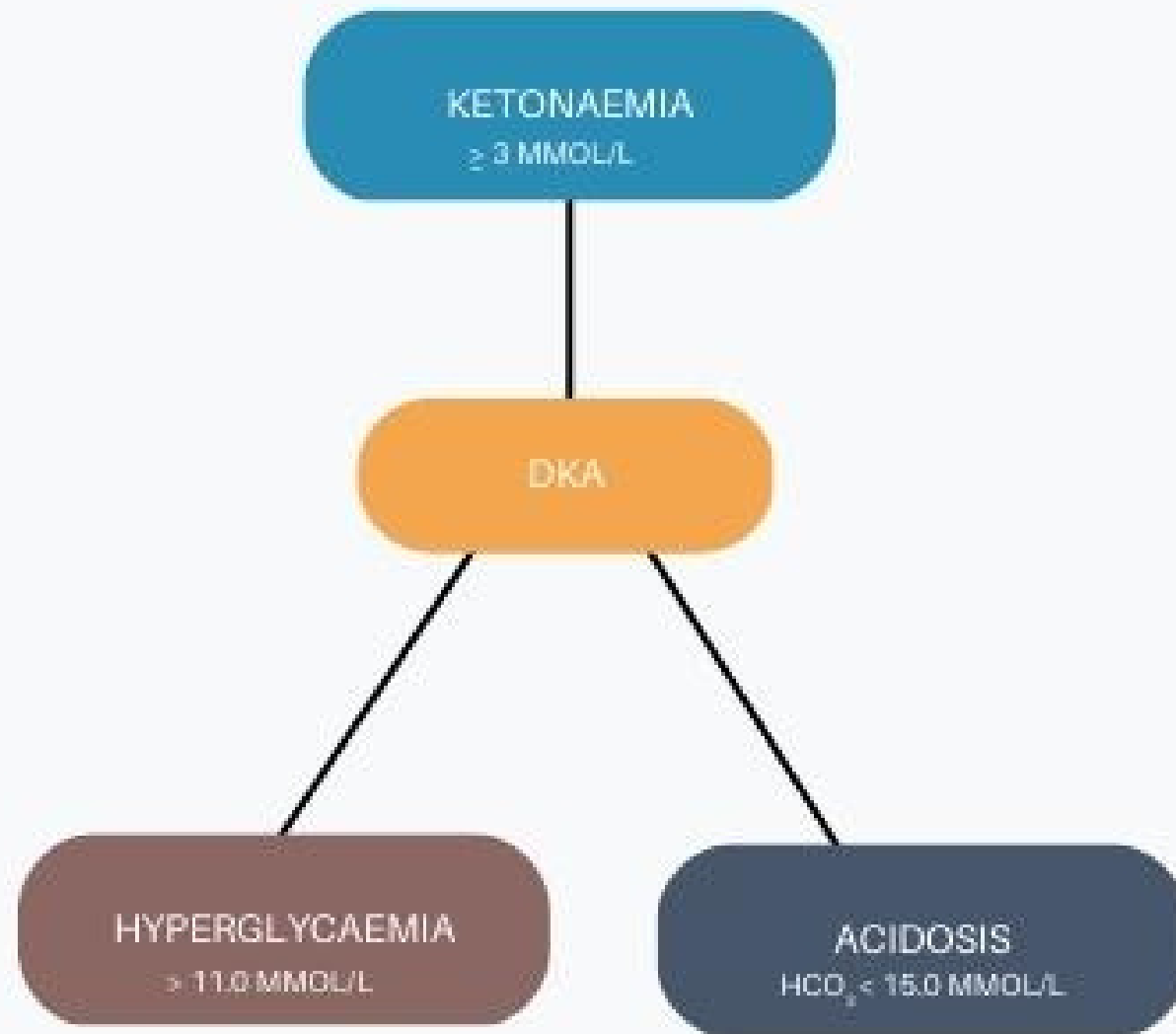


WHAT ARE THE CLINICAL OUTCOMES OF DKA PATIENTS?

- Typical symptoms of DKA include excessive thirst (also known as polydipsia) and frequency of urination.
- These classic indications could be exacerbated by more systemic manifestations such as fatigue, sickness, vomiting, and abdominal discomfort.
- When DKA advances, patients have to worsen systemic symptoms, including dehydration and disorientation. Kussmaul's breathing, often known as deep sighing, is a typical sign of DKA, and Ketotic breath is another symptom with a sweet pear drop smell.

**SIGNS
AND
SYMPTOMS**

Conta...



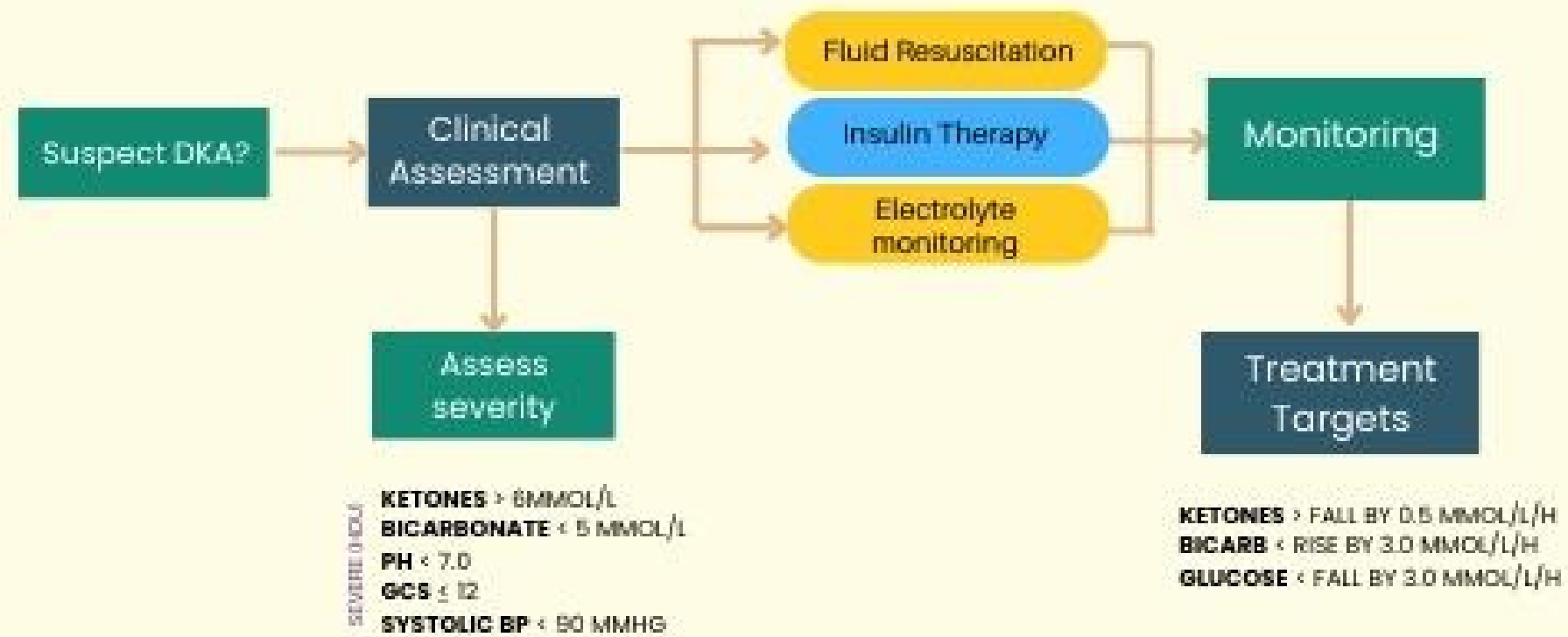


WHAT ARE THE BIOCHEMICAL PARAMETERS RELATED TO THE DKA CONDITION?

- Determining the [medical biochemistry](#) combination of hyperglycemia, acidaemia, and ketonaemia/ketonuria is the basis for diagnosing DKA –urgent diagnostic procedures to establish confirmation of DKA (Choo, S. J., 2022).
1. Blood glucose level: > 11.0 mmol/L
 2. Venous/arterial blood gas: pH < 7.3 or bicarbonate < 15 mmol/L
 3. The presence of ketone bodies is capillary blood ketone ≥ 3 mmol/L or urinary ketones +++ or above.



Contd...



- Among the adult population, the prevalence of [diabetic ketoacidosis treatment](#) is highest among those aged 20 to 40 years. Males, compared to females, have diabetic ketoacidosis at a higher incidence.
- Compared with type 2 diabetics, those with type 1 diabetes have a higher risk of developing DKA. There is no connection between the length of time someone has diabetes and the risk of developing [diabetic ketoacidosis symptoms](#).
- The most prevalent presentations found in this research are thirst, frequent urination leading to dehydration, intellectual disorientation, and sickness or vomiting.
- Infections, insufficient insulin delivery, and the absence of insulin or other drugs are the triggering variables seen more often.

Contd...

- The HbA1c level has a significant, meaningful link with the occurrence of DKA. Patients who appear with cognitive disorientation or coma have an increased serum osmotic pressure level, which has a significant association with these symptoms.
- Patients with decreased plasma bicarbonate levels tend to have more extended hospital stays. There is a substantial correlation between the two.
- There is no connection between a patient's HbA1c level and the length of their hospitalisation. However, due to all constraints, it would be better to check clinical symptoms with the biochemical tests in DKA frequently.
- **Medical doctorate Ph.D. Assistance's dissertation writing services are completely managed and written in compliance with the institutional criteria involving style, design, and structure of an ideal dissertation. We help you at every step, whether it's dissertation subject selection, research proposal assistance for the topic you've chosen to research, or [medical dissertation](#) content development.**

Contact Us



UNITED KINGDOM
+44 7537144372



INDIA
+91-9176966446



EMAIL
info@phdassistance.com



PHD ASSISTANCE

YOUR TRUSTED MENTOR SINCE 2001