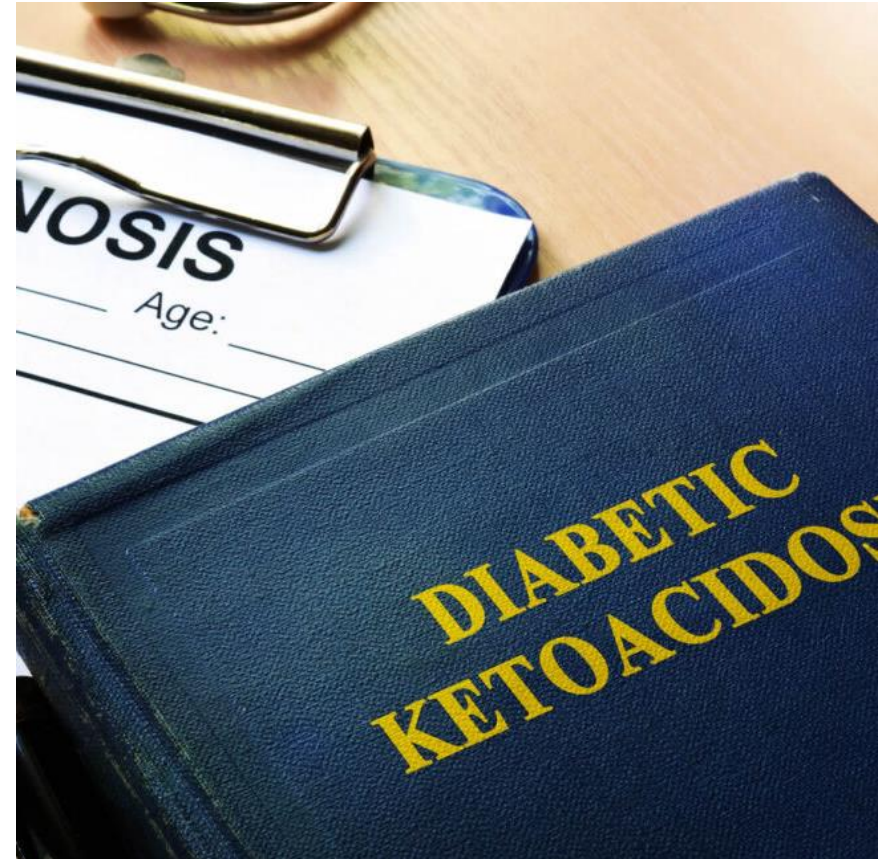


DKA  
PATHOPHYSIOLOGY  
& MANAGEMENT

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COCH

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DKA-RCP Update 2023

# DECLARATION FOR SUNIL NAIR

- I have no financial interests or relationships to disclose with regard to the subject matter of this presentation.



LIFE  
THREATENING  
CONDITION!!!!

- History of DKA
- Degree of acidosis
- GCS
- Comorbidities
- Age

# SENIOR DECISION MAKER

- Severity
- ?ICU
- Precipitating factor
- DKA protocol

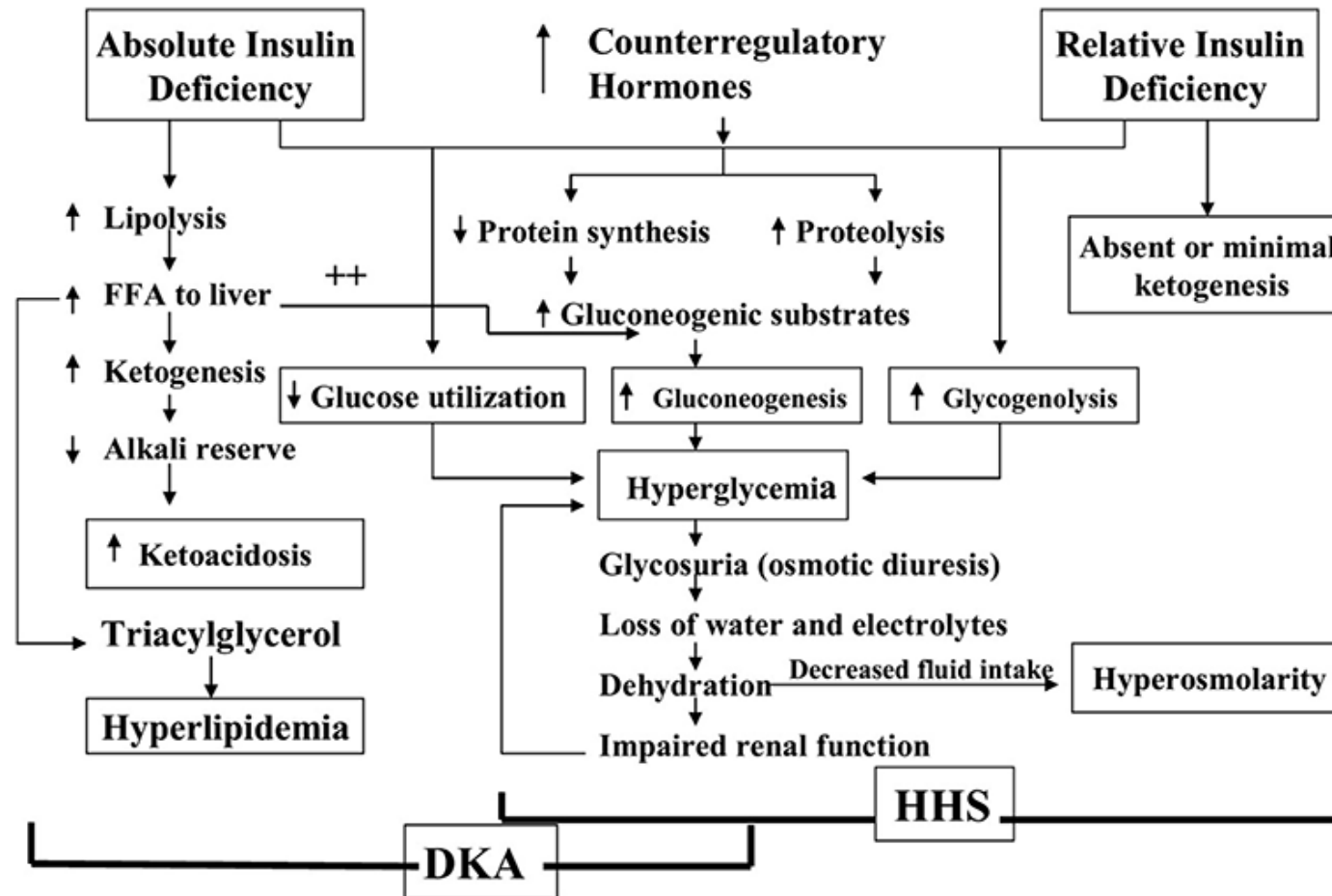


# SEVERE DKA

- Blood ketones  $>6$  mmol/L / Bicarbonate  $<5$  mmol/L / Venous/arterial pH  $<7.0$
- Hypokalaemia on admission ( $<3.5$  mmol/L)
- Glasgow Coma Scale  $<12$
- Oxygen saturation  $<92\%$  on air (assuming normal baseline respiratory function)
- Systolic blood pressure (SBP)  $<90$  mmHg
- Pulse  $>100$  bpm or  $<60$  bpm
- Anion gap  $>16$



# PATHOPHYSIOLOGY



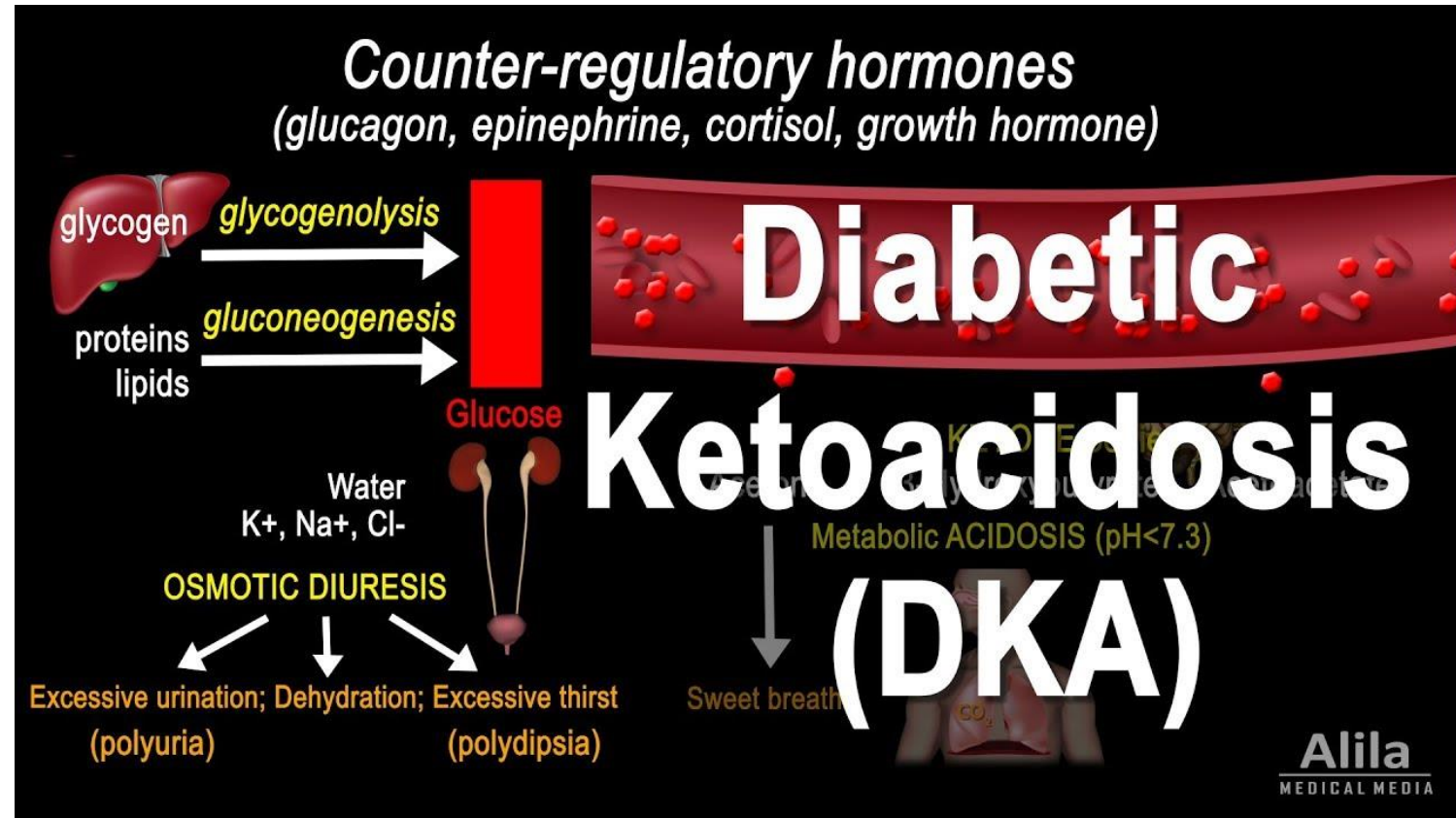
# PATHOPHYSIOLOGY

## TRIGGERS

STRESS

INFECTION

INSUFFICIENT INSULIN





J O I N T B R I T I S H  
D I A B E T E S S O C I E T I E S

**T H E M A N A G E M E N T O F D I A B E T I C K E T O A C I D O S I S  
I N A D U L T S \* R E V I S E D M A R C H 2 0 2 3**



# FLUID ADMINISTRATION AND DEFICITS

- Appropriate fluid replacement followed by insulin administration!
- Typical fluid deficit in adults; 100mls/Kg body weight

The main aims for fluid replacement are:

- Restoration of circulatory volume
- Clearance of ketones
- Correction of electrolyte imbalance



# INSULIN THERAPY

## Aims of insulin therapy

- Suppression of ketogenesis
- Reduction of blood glucose
- Correction of electrolyte disturbance

A fixed rate intravenous insulin infusion (FRIII) calculated on **0.1 units/kg/hr**

If CBG < 14 mmol/L FRIII of 0.05 units/Kg/hr

- Over 5.5 Nil
- 3.5-5.5 40mmol/L infusion
- Below 3.5 Senior review as additional potassium needs to be given

# POTASSIUM REPLACEMENT



# METABOLIC TREATMENT TARGETS

- Reduction of the blood ketone concentration by 0.5 mmol/L/hour
- Increase the venous bicarbonate by 3.0 mmol/L/hour
- Reduce capillary blood glucose by 3.0 mmol/L/hour
- Maintain potassium between 4.0 and 5.5 mmol/L

If these targets are not achieved, then the FRIII rate should be increased

# CONVERSION TO SUBCUTANEOUS INSULIN

- Convert to s/c regime when biochemically stable (blood ketones < 0.6 mmol/L, pH over 7.3) and they are ready and able to eat.
- Conversion to s/c insulin is ideally managed by the diabetes specialist team.
- If the person with diabetes is newly diagnosed, it is essential they are seen by a member of the specialist team prior to discharge



THANK YOU  
ANY  
QUESTIONS??