Clinical Pathological Case (CPC)

Seed
GLOBAL HEALTH

CPC
CASE-BASED LEARNING SERIES
"Mastering Emergency Care"

Disclaimer

Clinical Pathological Case training videos are for educational purposes and should not be used as the sole source of reference during patient care. Always refer to official guidelines and consult qualified professionals before applying any practices

Case Based Learning Series

"Student Led Adult Learning"



Presenting Complaint

- 35 year old Man
- Brought in semi conscious
- Restlessness for one day



Pre-hospital Care Preparation

Transfer: Home to hospital

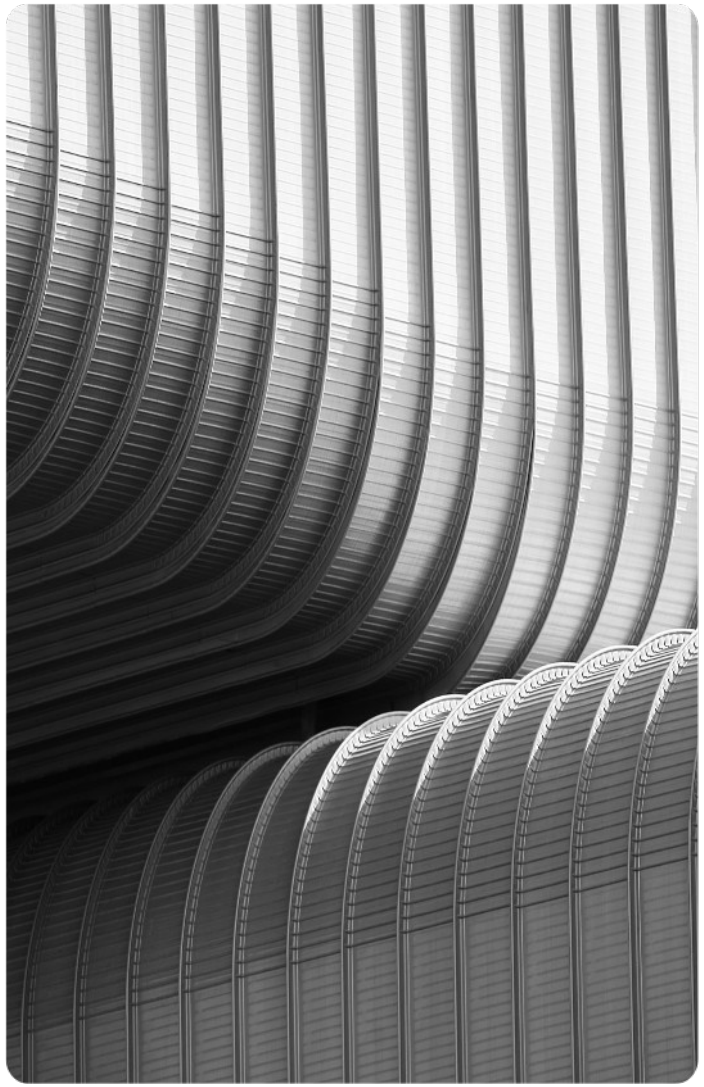
Crew: 2 EMTs , one driver

Ambulance: Type C (ALS)

Equipment/Medication

PPE, OPA, Suction, NR-Mask, IV Cannulas, Normal saline, Glucometer, Blanket

ISBAR Report



Identity: Kusseewo Aukasha, EMT dispatched to transfer 35yr male; home to hospital.

Situation: found by spouse, semi-conscious, tachypneic.

Background: known hypertensive, restless, vomiting before becoming semi-conscious.

Assessment: Patent airway, 30bpm, likely Kaussmaul pattern, SPO2 89% => 94% on 15L via NRM. HR146bpm, BP 182/89mmHg, cold peripheries, access secured. GCS-11/15, RBS-19mmol. Gave 500ml Normal saline

Recommendation; Review by physician, repeat RBS, continuous oxygen therapy & management

Expert



What are your initial thoughts?



What is you preparation and approach to this patient?

Primary Survey

A: Patent

B: Tachypneic,RR-30bpm, SPO2-89%

C: CRT-<2Sec, BP-186/89mmHg, Pulse normal volume regular, PR -146bpm. Blood samples collected for Labs

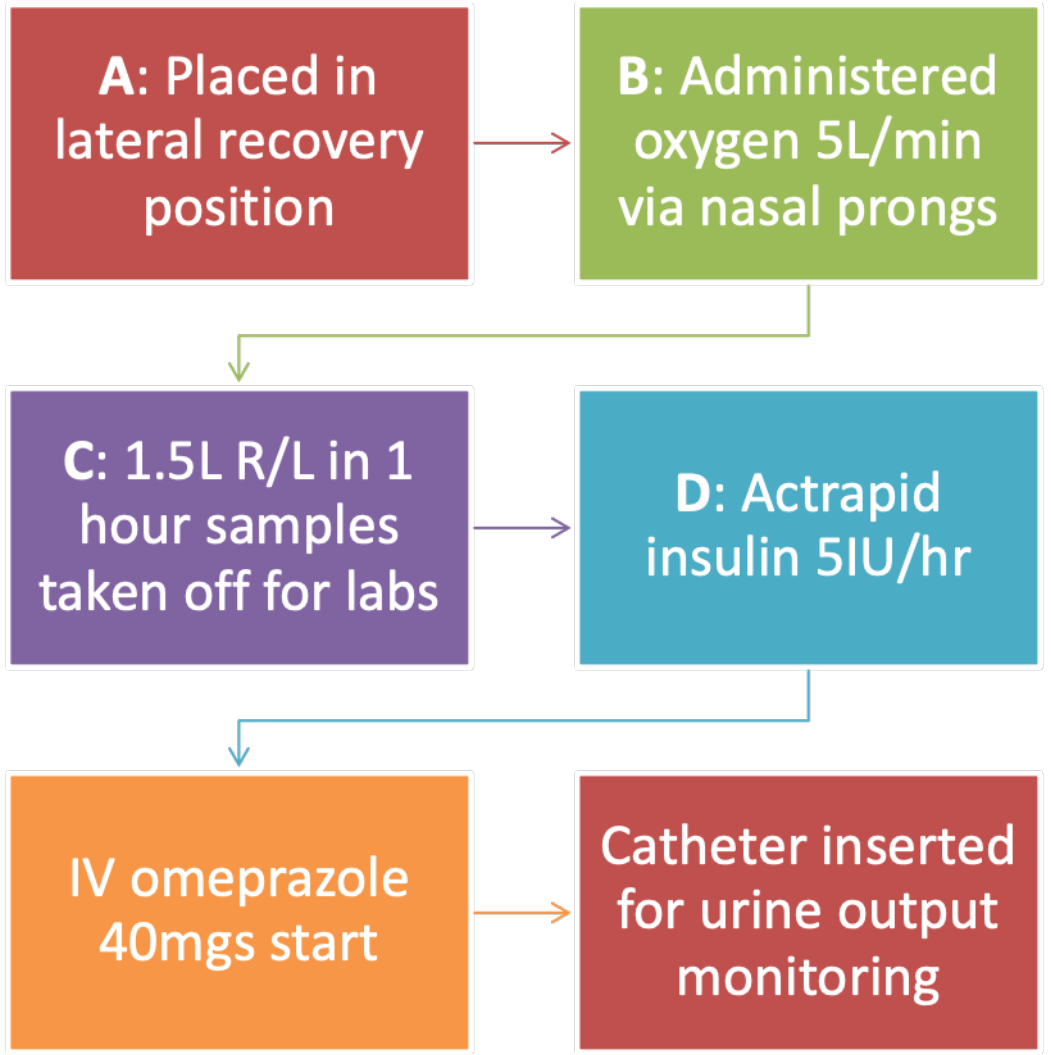
D: Reduced LOC ,GCS; 9/15 PEARL, neck soft, RBS-19mmol/L

E: Noted white irregular flat skin patches on hands, neck and face.

Problem list

Decreased level of consciousness
Difficulty in breathing with hypoxia
Raised blood pressure
Raised glucose levels

ED INTERVENTION



SAMPLE History



Symptoms: Abd pain , diarrhea , restlessness, vomiting



Allergies**,** & **M**edications unknown , **P**MH of hypertension, poor adherence



Last Meal: 7 hours prior



Events Prior: Restless, vomited, became semi-conscious.

Audience

- Any additional information?



Exert opinion?



Any additional thoughts at this point?



Any additional info you would want to get?

Secondary survey

Head and Neck: **Dry lips**, Soft neck, no pallor/ jaundice/jugular distension,

Chest: Labored breathing with Inter/subcostal recession , resonant percussion, equal air entry, infra-scapular crackles.

Abdomen: Normal fullness, no tenderness, no organomegalies.

Extremities: cold, no fractures, no soft tissue injuries

Neurological: GCS:9/15

LABS

HBA1C: 14.0%

CBC: WBC **11.5 H, Neut 8.6 (H), Lymph 1.4 (L),** HB 12.9 ,Platelets 314

Urinalysis: Ketones +++ , PH-6.8 , Glucose +

LFTs: Normal

RFTs: Urea 14.3 (H) , Creatinine259 (H) , Chloride 128 H , S odium 153 (H) , Potassium 4.2 , Calcium 2.3

Expert opinion



What are your differentials at this point



What is your management plan?

Differential Diagnosis

DIFFERENTIAL	REASON
Diabetic ketoacidosis	Ketonuria +++ HBAIC 14% RBS 14mmol/L
Hyperosmolar hyperglycemic state	Dehydration confusion
Hypertensive Crisis	BP- 182/89mmHg + HTN Hx with poor drug adherence
Gastroenteritis	Abd pain Vomiting diarrhoea

Management plan

1.**Initial stabilization: ABCDE**

2.Investigations

3.**Specific treatment**;

•IV FLUIDS:(Deficit of 5L +Maintenance of 1.8L =Total fluid replacement of 6.8L in 24hrs) 1L IN 30min , 1L in 1HR , 1L in 2hrs, 1L over 2-4HRS, when blood glucose is less than 13.9mmol/L Switch to D5% 1L 8hrly THEN

•Maintenance fluids as :D5%:R/L in 1:1 for 48hrs

•Insulin Actrapid IV 5IU/hr, If RBS drops <13.9mmol/L Reduce Insulin actrapid to 0.05IU/kg/hr, give, then switch to SC glargine 0.3IU/kg(15IU) pre-supper

•IV Ceftriaxone 24hrly

•Iv Omeprazole 40mgs 24hrly

•Hrly monitoring of glucose ,PR,RR and BP and clinical status, 2-4HRLY

FOLLOW UP

8 hrs: Regained consciousness, RR18, PR126, BP194/92 ,RBS13.6mmol/L

- Creatinine-180 ,PH7.1, K 3.8, Na145.

Plan: continued with initial plan + Lorsatan 50mg + ;Amlodipine 10mg

24hrs: Fully conscious, RR14bpm, PR118, BP168/79,RBS 9.4mmol/L

- Creatinine 132, PH 7.24, K3.6, N142.

Patient transferred to endocrinology ward

Expert

Pearls and pitfalls



DIABETIC KETOACIDOSIS

- Acute complication of diabetes from absolute insulin deficiency.
- Medical emergency: Mostly T1DM, can be 1st presentation. Can also occur in T2DM
- Triad: **hyperglycemia**, **Ketonemia/Ketonuria** and **metabolic acidosis**.

Common precipitants

- ✓ Infections(pneumonia, UTI, Gastroenteritis, Sepsis)
- ✓ Inadequate insulin administration
- ✓ Infarction (cerebral, coronary, mesenteric,peripheral)
- ✓ Drugs (e.g SLT2 inhibitors can cause euglycemic DKA)

PRESENTATION

SYMPTOMS

- Polyuria, thirst
- Weight loss
- Weakness
- Nausea, vomiting
- Leg cramps
- Blurred vision
- Abdominal pain

SIGNS

- Dehydration
- Hypotension (postural or supine)
- Cold extremities/peripheral
- cyanosis
- Tachycardia
- Air hunger (Kussmaul's breathing)
- Smell of acetone
- Hypothermia
- Delirium, drowsiness, coma (10%)

GOALS OF DKA TREATMENT

There are 4 major immediate/emergent goals;

- Correction of Fluid deficit
- Correction of hyperglycemia
- Correction of deficits in electrolytes
- Correction of acidosis

IMMEDIATE MANAGEMENT

1. ABCDE
2. Fluid replacement

- Largely dependent on the severity of the deficit (shock, severe dehydration, moderate or mild dehydration) and correction should be with 24 to 48 hours.

- Fluid of choice is RL; however, N/S can equally be used

- When blood glucose <14mmol/l switch to 5% dextrose,1 L 8 hourly

- If serum sodium is > 150mEq/L , 0,45% saline should be used

- Typical requirement is for an average weight man in good physical status in first 24 hrs. is 6L.

Continuation..

3. Insulin replacement

- Patients with K+ <3.5mE/L do NOT give insulin; replete K first and fluids

- Patients with K+ ≥ 3.5; give after initiation of fluid replacement, regular or rapid acting insulin is given in a loading dose of 0.1U/kg followed by continuous IV infusion at 0.1U/kg/hr.

- Plasma glucose is monitored hourly until <14mmol/L , the rate infusion is adjusted as needed
- If plasma glucose level fails to fall at least 10% in the first hour, a repeating loading dose (0.1-0.14U/kg)

Continuation..

4. Correction of acidosis

- Insulin therapy stops lipolysis and promotes the metabolism of ketone bodies. This together with correction of dehydration normalize the blood PH.
- Bicarbonate therapy should not be used unless severe acidosis (pH<7.0). If it must be given, it must infuse slowly over several hours.

REFERENCES

- Cecil medical essentials 2022
- Davidson’s principles and practice of internal medicine, 24th Edition.
- American Diabetes Association guidelines 2026

CPC -Case-Based Discussion Wall of Fame

TOPIC	PRESENTER	EXPERT	MODERATOR	MENTOR	DIAGNOSIS
Altered Mental Status	Dr. Jimmy Atyera	Dr. Kenneth Bagonza	Dr. Daniel Olinga		Atrial Fibrillation
I Can't Breathe	Regan Kakande MBChB V	Dr. Doreen Okong	Dr. Anna Kaguna	Dr. Daniel Olinga	Tension Pneumothorax
My Neck is Stuck	Dr. Emmanuel Mbaruk	Dr. Joseph Kalanzi	Dr. Anna Kaguna	Dr. Tracy Walczynski	Tetanus
It keeps dripping	Hennrietta Lunkuse MBChB V	Dr. Ambrose Okello	Dr. Anna Kaguna	Dr. Robert Wangoda	Rectal Polyp
I'm yellowing and can't pee	Doreen Ndagire Sanga MBChB IV	Dr. Linda Nalugya	Dr. Anna Kaguna	Dr. Deo Edemaga	Hepatorenal syndrome
I fell off a boda-boda	Tithi Tripathi, MBCHB IV Jane Nalunkuuma EMT II	Dr. Prisca Kizito	Dr. Danioel Olinga	Dr. Doreen Okong Andrew Okiror	Lung Re-expansion syndrome
Breathless, Yet Breathing Deep	Rebecca Asiimire Winfred Kingfred Wangechi EMT II	Pius Opejo	Dr. Anna Kaguuna		Diabetic Ketoaciodosis
My Body is paining	Maria N. Namujja, MBChB V Melvin Bongozana EMT II	Dr. Joseph Emuron	Dr. Anna Kaguna	Dr. Baturaki Amon	Acute Kidney Injury
I feel them crawling	Patience Kwagala MBChB V Evy Obare, BSc. Paramedical	Dr. Gumisiriza Nolbert	Dr. Jimmy Atyera		Alcohol Withdrawal Syndrome
Baby has a fever	Nyesigamukama Hamson MBChB V Banura Deborah Kirabo	Dr. Jaimini Popet	Dr. Daniel Olinga	Dr. Kaina Vincent	Complex febrile convulsions
She had Multiple Jerky Movements	Katushabe Bridget Ericah MBChB V Kusseewo EMT II	Dr. Aggrey Lubikire Joseph	Dr. Daniel Olinga		Complicated Malaria in Pregnancy

CPC Secretariat: Emmanuel Okumu , Andrew Twineamatsiko, Bonaventure Ahaisibwe , Jimmy Atyera, Daniel Olinga, Anna Kaguna

CPC -Case-Based Discussion Wall of Fame

TOPIC	PRESENTER	EXPERT	MODERATOR	MENTOR	DIAGNOSIS
Approach to the deteriorating trauma patient " I fell from a tree"	Kalimuzo Joseph Kusseewo Aukasha	Dr. Jacob Busingye	Dr. Jimmy Atyera		Traumatic Spinal Injury
The deteriorating peadiatric patient "my chest hurts"	Adrian Kiberu Charity Kayesu	Dr. Andrew Kimera	Dr. Emmanuel David Okumu		Heart failure secondary to rheumatic fever
I just can't catch my breath	Ankit Kalyani Nakyanzi Meble	Dr. Guloba Umarashid	Dr. Anna Kaguna	Dr. Ambrose Okello	ARDS
He is unresponsive	Dr. Akiyo Aluma Muhwezi Darius	Dr. Joseph Bonney	Dr. Daniel Olinga		Hypertensive Encephalopathy
He is burning up	Nyikiriize Abaasa Arinaitwe Godwin	Dr. Kenneth D. Bagonza	Dr. Anna Kaguna		Sepsis
He can't sit still	Baryamujura Hasina Kusseewo Aukasha	Dr. Benard Mwesigye	Dr. Daniel Olinga		DKA
CPC Secretariat: Emmanuel Okumu , Andrew Twineamatsiko, Bonaventure Ahaisibwe , Jimmy Atyera, Daniel Olinga, Anna Kaguna					

Acknowledgements

- DELTA-EM
- MAK-EMIG
- MUST-EMIG
- KIU
- St. Francis Nsmabya Training School
- St. Micheal Lubaga Training School
- ECAU
- Seed Global Health Uganda