Ebola Case management: Experiences from Fort Portal

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INTRODUCTION

- Sudan ebolavirus disease has no specific therapies
- Management is majorly supportive with the aim of correcting deranged physiology parameters
- Care must be delivered safely, promptly and monitored
- Delivery of optimized supportive care requires
  - Staff
  - Systems
  - Supplies
  - Structure
  - Security

Activation of Fort Portal RRH Isolation unit

- Fort Portal RRH has a 6-bed isolation unit
- Supported by a clinical research team of about 30 multidisciplinary members
- The unit was activated on Sept 28
  - Received 6 HCWs Transferred in from Mubende RRH
  - 3 patients were critically ill at the time of admission
  - Received an additional admission from Bunyangabu while managing the initial cohort
  - Recorded 2 deaths
  - Five survivors were transferred to Entebbe isolation facility for Psychosocial support and discharge
  - Unit was active for 11 days. Currently on standby

Roles in the Treatment unit

ETU manager with administrative staff (HR, records, logistics, drivers, security)

Clinical team under a clinical head

Nursing team under nurse I.C

Psychosocial team

Support staff especially hygienists

Treatment unit capabilities

- 6 HDU level beds
- Point of care ultrasound
- An onsite laboratory (BSL II lab)
  - CBC
  - Chemistry
  - Urinalysis
  - Blood gases
  - Coagulation studies
- Onsite incinerator
- Central chlorine mixing system with plumbing
- Designated security and fencing around the unit

PATIENT CARE

Objectives

- Staff safety
- Optimal supportive patient care

Disease categories

Very dynamic, hence the need for stringent monitoring

- Mild disease
- Moderate to severe disease
- Very severe disease progressing to death

Major patient problems

Clinical

- Vomiting (blood stained)
- Diarrhea (blood stained)
- Epigastric pain
- Sore throat
- Fevers
- Joint pains
- Conjunctivitis
- Headache
- Respiratory distress
- Altered consciousness
- Passing tea-colored urine
- Skin rash
- Anorexia

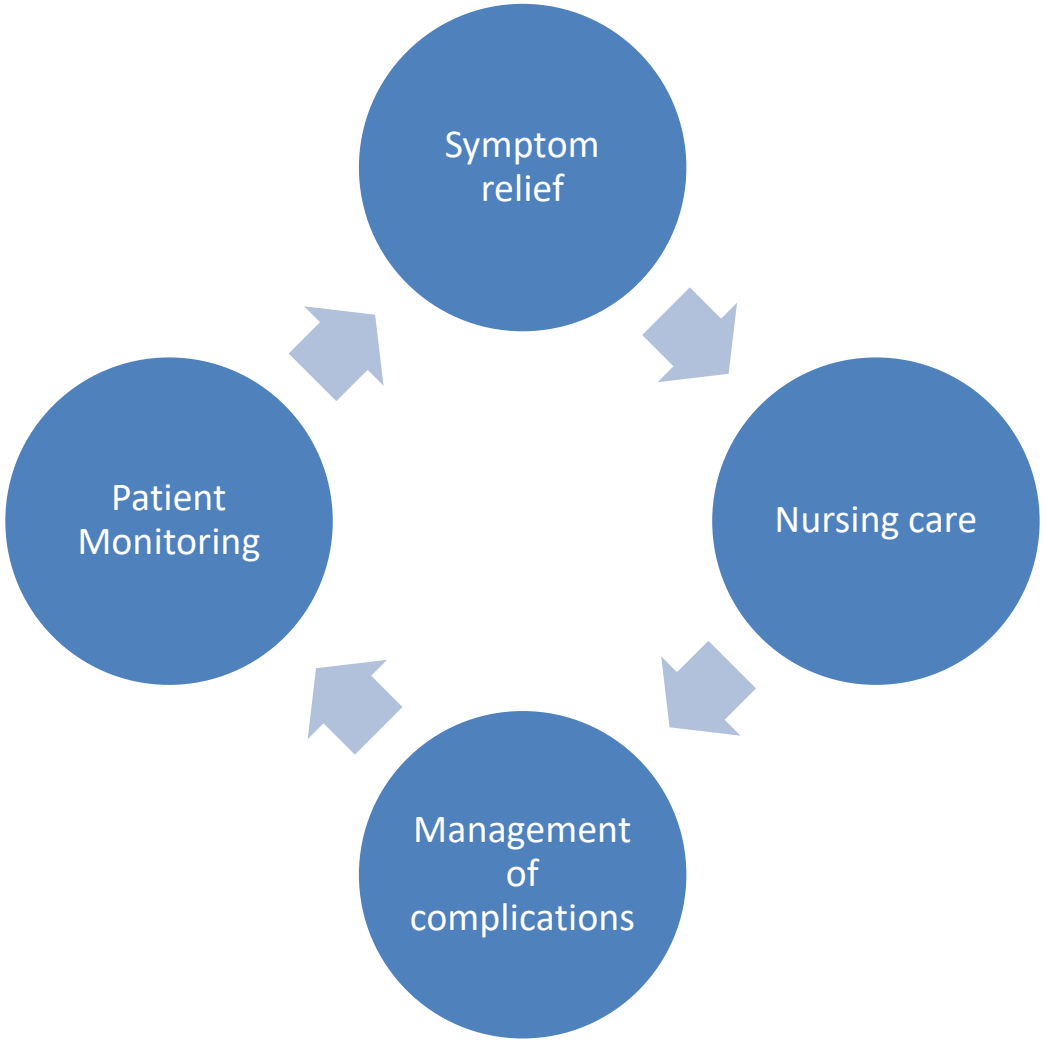
Biochemical parameters

- Raised creatinine and urea
- Proteinuria
- Hematuria
- Hypokalemia
- Raised liver enzymes (especially ALT, AST)

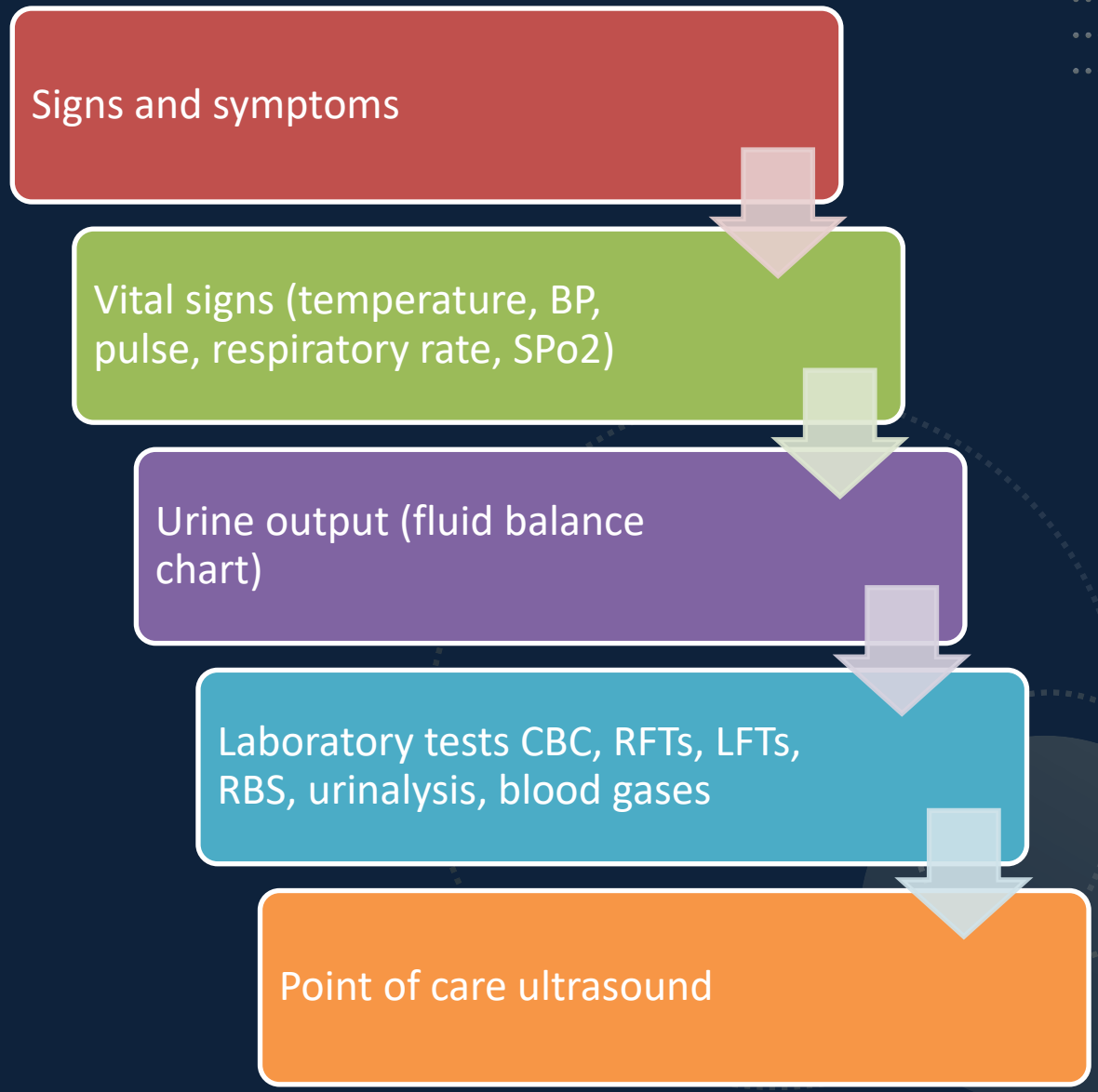
Others

- Psychological stress and anxiety

Clinical management approach



Patient monitoring



Symptom relief

Temperature and pain

- Oral or I.V paracetamol 500-1000mg 6hrly
- IV Tramadol 100 mg

Vomiting

- I.V Metoclopramide 10mg 8hrly
- I.V Ondansetron 4-8mg 8hrly

Epigastric pain

- PPIs (I.V Omeprazole) 20-40mg once a day

Nursing care

- Prompt/timely administration of prescribed medicines
- Nutrition support/feed the patient
- Bed baths for those who can’t get out of bed
- Oral hygiene
- Changing diapers and management of infectious spills
- Safe Management of patient linen

Manage complications

- Hemodynamic instability
- Acute kidney injury
- Acute liver injury
- Respiratory distress
- Electrocyte imbalance
- Secondary bacterial infections
- Bleeding
- Encephalopathy

Management Maintenance fluids and continuous fluid losses

Quantity of fluids

- Adults: An adult who is not febrile needs a fluid intake of about 25-30 ml/kg/day (1.5-2 liters per day for an average-sized adult)

- Febrile patient => consider insidious losses: about 2.5 ml/kg/day for each degree above 37°C.

- If enteral nutrition or fluids are started, reduce IV fluids accordingly.

Frequent reassessment is necessary

Maintenance fluids Balanced isotonic and electrolyte fluids (e.g. Ringer's lactate + Dextrose 5/10%) **Enteric fluids ORS**	**PLUS**	**Fluid loss** Diarrhoea Vomiting Replace with **Ringer's lactate +/- Dextrose** **Enteric fluids: ORS**

Secondary infections

- Risk of malaria and bacterial co-infection
- All patients received prophylactic broad-spectrum antibiotics
  - I.V Ceftriaxone
  - IV metronidazole
  - I.V PISA (for critical patients)
  - Azithromycin (given where patients were stable to tolerate oral medication)
  - All patients were screened for Malaria bed side using mRDTs. Non were positive

Respiratory complications in EVD

Emergency equipment must be ready - essential in the context of EVD

Four patients required oxygen

- Two developed respiratory distress and died

Identify clinical signs of respiratory distress

- **Tachypnea (RF > 20/min abnormal, > 30/min severe)**
- **Use of accessory muscles**
- Severe wheezing/stridor
- **Cannot speak in complete sentences,**
- **Cannot eat and drink**
- **Agitation or altered mental state**
- Ineffective respiratory effort (peri-arrest situation)

Identify the cause of respiratory and manage accordingly

Common causes in EVD

Diagnosis	Clinical aspects
Severe sepsis	Usually associated with fever
Pulmonary edema	Hx of renal dysfunction, suspected or known cardiomyopathy Signs- distended neck veins, lower limb edema among others

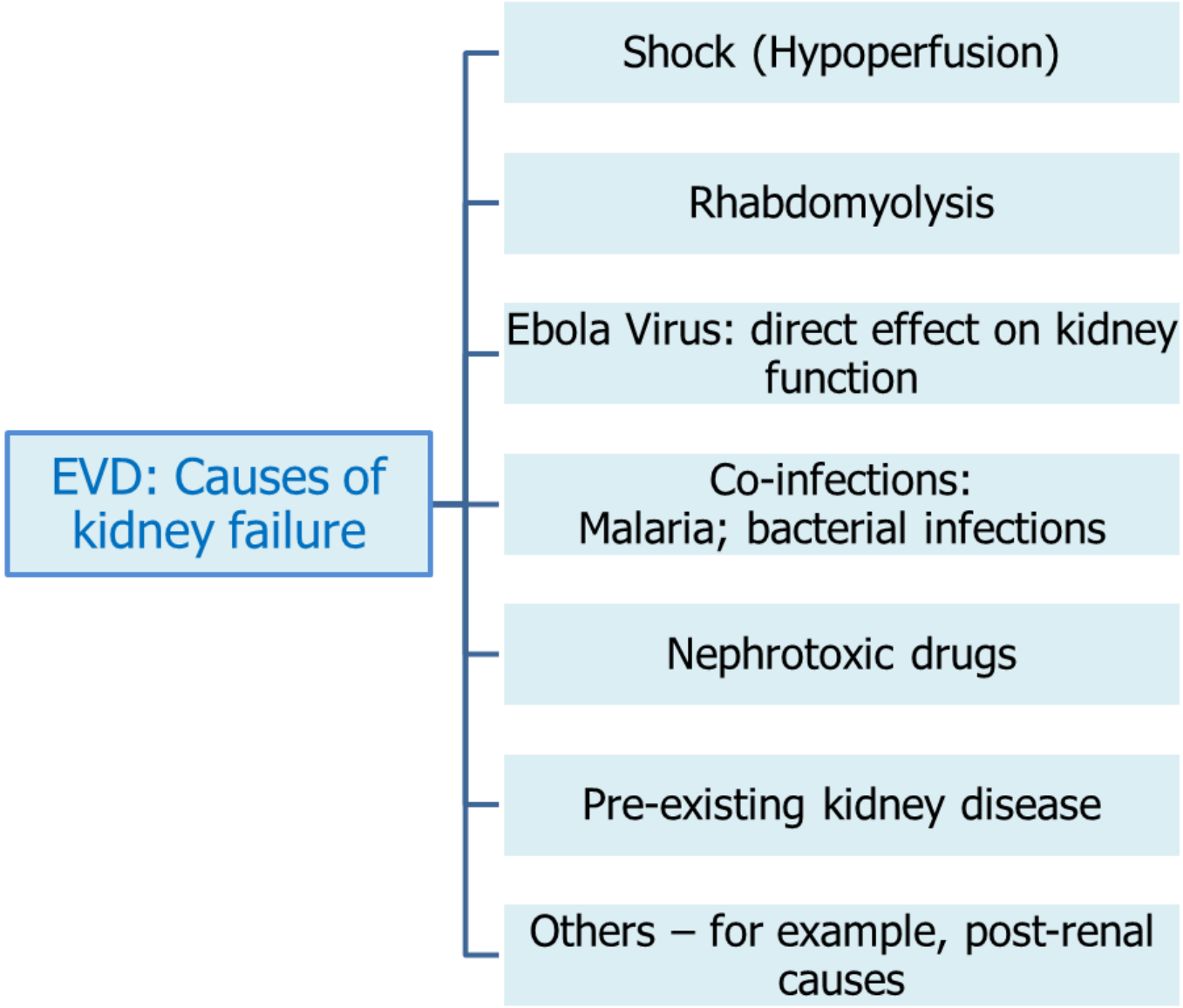
Other causes not specific to EVD

- Anemia, pneumonia, metabolic acidosis, PE etc.
- POCUS can be useful in diagnosing and treating patients with respiratory problems.

Oxygen therapy

- O_2 flow rate: 1 – 5 L/min- Nasal prongs
- O_2 flow rate: 5 – 10 L/min-Face mask
- O_2 flow rate: 10 – 15 L/min- face mask with reservoir
- Non-invasive respiratory support in cases of severe respiratory distress + hypoxaemia (e.g. bubble CPAP, HFNO) preferred
- O_2 flow rate: 10 – 60 L/min- High flow oxygen

Acute kidney injury



Principles of management of ARF

Pre-renal ARF

- Dehydration → fluids!
- Cardio-renal syndrome → diuresis!

Renal ARF

- Maintaining blood volume
- Maintain blood pressure and MAP
- Remove potentially harmful substances

Post-renal ARF

- Remove obstruction!
  - Foley catheter
- Ureteral stenting (if unilateral), percutaneous nephrostomy

WHO Optimized supportive care for EVD

Impaired liver function

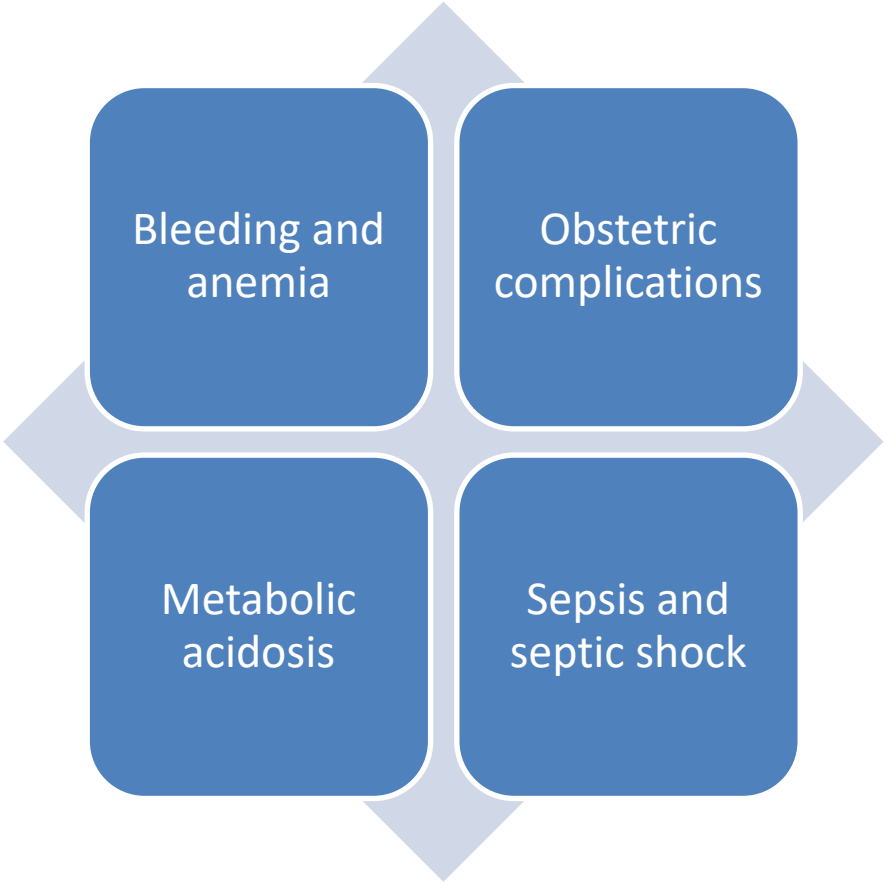
Reduce dosage/stop hepatotoxic drugs such as paracetamol

Monitor blood sugars

ENCEPHALOPATHY AND EVD

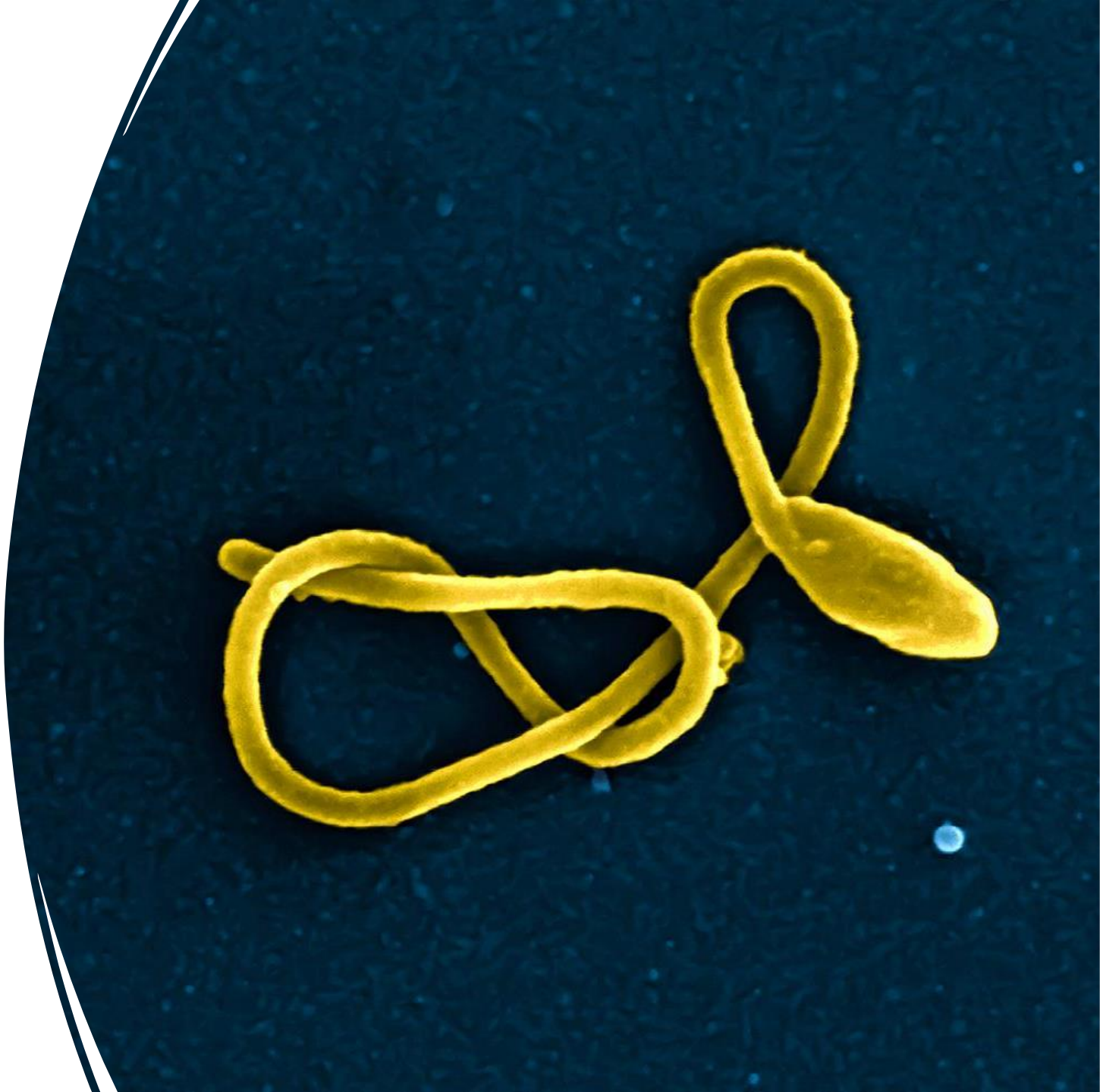
Instability of Vital functions	Common Infectious Causes	Non-infective causes
• Hypoxemia/hypotension	• Sepsis (co-infections) • Bacterial meningitis • Neruo-malaria • HIV/TB • Acute meningoencephalitis (SUDV)	• Electrolyte disorders • Hypoglycemia • Uremia/Acute renal failure • Hepatic encephalopathy • Hypertensive emergencies (including eclampsia) • Intracranial bleeds • Cerebral ischemia

Other complications to consider



Specific SVD therapies

- Currently there are no licensed SUDV specific therapies
- The MoH is championing access to experimental therapies under the Expanded access programs and MEURI
  - Antivirals (e.g., Remdesivir): act by blocking viral replication
  - Monoclonal antibodies: Neutralizing the virus and halting entry in other cells



THANK YOU