EMERGENCY NURSING CARE OF MENINGITIS IN CHILDREN AND ADULTS.

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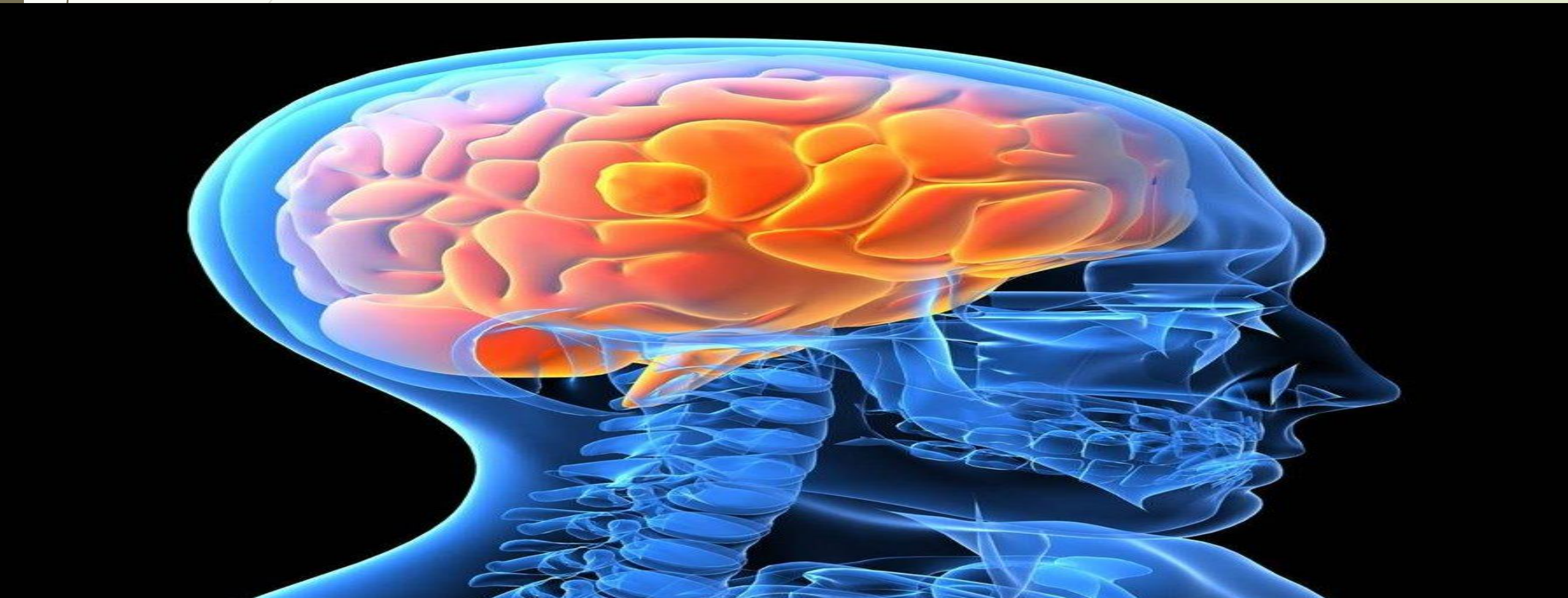


Definition of Meningitis

- Inflammation of the meninges covering the brain and spinal cord.

- It is classified as a medical emergency where early identification and early treatment of meningitis can eliminate serious consequences, especially caused by bacterial meningitis.
  - Such consequences are; hearing loss, memory problems, learning disabilities, brain damage, seizures, and death.

Etiology

Causative organisms are;

- Bacterial - Neisseria meningococcus, Streptococcus pneumoniae, Mycobacterium tuberculosis etc.
- Viral – Mumps virus, Herpes simplex virus and varicella zoster virus
- Fungal – Cryptococcus Neoformans, Aspergillus,
- Parasitic – Schistosoma, Angiostrongylus cantonensis

Epidemiology in adults

- Prevalence of all meningitis cause of death is about 60% in Uganda.
- One of the commonest cause of meningitis infection in adults is cryptococcus neoformans (cryptococcal meningitis).
- Cryptococcal meningitis was observed to be the second common infection in advanced HIV at Kirruddu NRH (study carried out by Dr. Tugume).

Epidemiology in children

- Among the population of under-five, the incidence of meningitis ranges 6.5-10.6/ 100,000
- The population aged five and above (2.5-4.2/ 100,000).

Note; The Pediatric Neuro-ward (Mulago NRH) admits 2 cases of meningitis a month.

Research done at Kawempe NRH found that majority of the children below 1 year and neonates present with meningitis specifically group B streptococcal bacterial meningitis

Clinical presentation

Signs and symptoms of infants below 3 months

- Fever or hypothermia
- Bulging fontanelle
- Convulsions / seizures
- High pitched cry & irritability
- Altered mental state
- Apnea
- Vomiting
- Poor feeding

Signs and symptoms of infants above 3 months to adolescents

- Fever
- Headache
- Photophobia
- Stiff neck
- Vomiting
- Altered levels of consciousness
- Kerning's sign in older children
- Brudzinski's sign in older children
- Convulsions

Emergency Nursing Care of Children with Meningitis

- Put on PPE, Call for help
- Triage using ABCDE approach – helping to priotize care and categorize patients accordingly.
- Rapid assessment of cautious levels using AVPU scale to determine the alertness, verbal response, pain or unresponsiveness in a child.
- Assess for any injuries related to seizures i.e. document characteristics of the seizures and duration.
- Assess for dehydration, hypotension or electrolyte imbalance.
- Assess for alteration or discomfort related to irritability, headache, photophobia and phonophobia.
- Monitor for changes in body temperature i.e. hypothermia or hyperpyrexia.

Nutrition assessment

- Children of age below 5 years; if MUAC is below 11.5cm, such children are malnourished.
- Children of age above 5 years; if MUAC is less than 13.5cm, malnutrition is suspected.
- Nutritional care and counselling is crucial.

Laboratory Investigations

- Counsel care givers on the need for lumber puncture to be performed on a child.
- On LP performance, analysis of CSF is done for microbiology and biochemistry.
- Blood investigations i.e. CRP, blood cultures, other cultures (urine, abscess or pus from the middle ear of the child), CBC, and ESR.
- LFT'S, RFT'S and serum electrolytes.
- Other investigations where possible; electro encephalogram, head imaging(CT scan which will be done according to neurological abnormalities).

Note: CT scan should only be done when a child is stable.

Nursing care management

Nursing plan and management should be guided by a patients presentation, investigations and the nursing diagnosis made.

- A nursing diagnosis of hyperpyrexia, this will guide administration of drugs to lower the temperature i.e I.V paracetamol
- A nursing diagnosis of hypoxia where a child is desaturating, oxygen should be administered and monitoring the flow of oxygen.
- Monitor for vital signs on a 2 hourly basis.
- For children with signs of severe malnutrition, after stabilizing it is important to refer them to mwana mugimu care unit for further management.
- Administer 2 liters of I.V fluids in about 1 hour for those severely dehydrated children or hypotensive.
- Seizures are managed with anti convulsant

Prevention of other infections

- Ensure good hygiene for both the sick children and care givers.
- Emphasize the importance of immunization to completion of all doses .
- 2 hourly turning of children to prevent them from developing bed sores and also encourage use of air mattresses for those that can afford.
- Education balanced nutritional.
- Physiotherapy.

Emergency Nursing care of adults with meningitis

Presentation of the patient

A severe headache

- Nuchal rigidity.
- Sudden high fever,
- Altered mental status.
- Photophobia
- Phonophobia
- Positive kerning's signs
- Brudzinski's signs

Presentation of the patient

- High-grade fever
- Hypotension
- Hypoxia
- Bradycardia
- Seizures

Nursing management

- Put on PPE, Call for help
- Assessment using ABCDE approach
- Brief history about the patient's condition
- A collaborate with other members of the medical team and do investigations like point of care to guide diagnosis e.g. CrAg LFA, Urine Lam

Nursing management for a confirmed patient with CCM

Goals of management

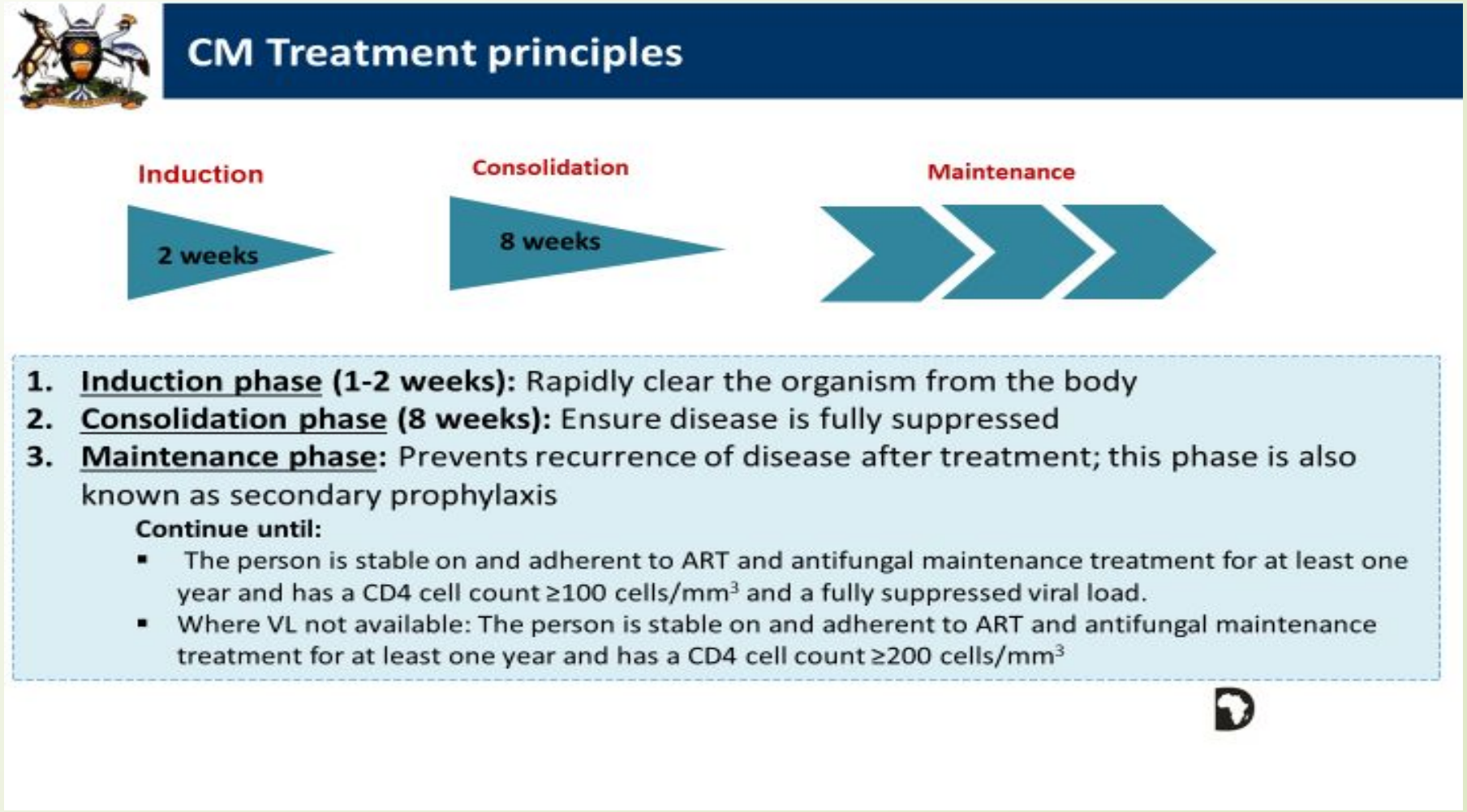
- Preventing Post lumber headache
- Clear the causative organism
- Prevent complications
- Prevent electrolyte imbalance
- Prevent drug induced toxicity

Nursing Intervention

- Positioning the patient to prevent post lumber headache after an LP
- Proper and safe administration of the drugs
- Proper management of complications like phlebitis
- Administering electrolyte supplements
- Preload and post loads of fluids

AMBITION REGIMEN

Single high dose Liposomal Amphotericin B 10mg/kg start, Flucytosine and fluconazole for 2weeks.



SAFE PREPARATION AND ADMINISTRATION OF LIPOSOMAL AMPHOTERICINE B

Reconstituting amphotericin B

Deoxycholate

Add 10 mls of water for Inj in each Vial

Reconstitution equivalent to:
5mg/ml

- Immediately after the addition of water for inj, **SHAKE THE VIAL VIGOROUSLY for 30 seconds** to completely disperse the AmBisome.
- **Visually inspect the vial for particulate matter** and continue shaking until completely dispersed
- Reconstitute all vials required for that dose

Liposomal

Add 12.5 mls of water for Inj in each Vial

Reconstitution equivalent to
4mg/ml

Conclusion

- Proper nursing Care
- Emphasize Vaccination
- Infection Prevention
- Appropriate drug administration
- Good Patient follow up
- Psycho-social support
- Ongoing counselling
- Referral