STANDARD OPERATING PROCEDURE

# Diagnosis and Management of Tuberculous Meningitis (TBM)

Special Region (1)

Union of Myanmar

Version: 1.1

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Approved by: Internal Medicine Unit

# 1. Purpose

To provide a standardized protocol for diagnosis and management of TB meningitis.

# 2. Definition

Tuberculous meningitis is a subacute or chronic infection of the meninges caused by *Mycobacterium tuberculosis*.

# 3. Risk Factors

- **General:** TB exposure, diabetes, malnutrition
- **HIV-related:** CD4 <200, advanced disease

# 4. Clinical Features

- **Stage I:** Fever, headache
- **Stage II:** Confusion, cranial nerve palsy
- **Stage III:** Coma, seizures

# 5. Diagnosis

- **CSF findings:** Lymphocytic pleocytosis, high protein, low glucose
- **Microbiology:** GeneXpert preferred, AFB smear, culture
- **Biochemistry:** CSF ADA
- **Imaging:** Basal enhancement, hydrocephalus, cerebral infarct, tuberculoma and cerebral edema

### CSF ADA Interpretation

- ADA <5 U/L: unlikely
- ADA 5-10 U/L: indeterminate
- ADA ≥10 U/L: suggestive
- ADA ≥15 U/L: strongly suggestive

**Note:** CSF ADA Sensitivity ~80-90%, Specificity ~85-95%

# 6. Management

Start treatment immediately if suspected because it is a medical emergency.

## 6.1 Anti-TB Regimen

- **Intensive phase:** HRZE (2 months)
- **Continuation:** HR (10 months)

**Note:** Anti-TB dosages are mentioned detailed in TB infection guideline.

## 6.2 Steroids

Dexamethasone IV followed by taper over 6-8 weeks.

### Stage I

| Week | Dexamethasone |
|---|---|
| Week 1 | 0.3 mg/kg/day IV |
| Week 2 | 0.2 mg/kg/day IV |
| Week 3 | 0.1 mg/kg/day IV |
| Week 4 | Oral 4 mg per day |

| | |
|---|---|
| Week 5 | Oral 3 mg per day |
| Week 6 | Oral 2 mg per day |
| Week 7 | Oral 1 mg per day |

## Stage II

| Week | Dexamethasone |
|---|---|
| Week 1 | 0.3 mg/kg/day IV |
| Week 2 | 0.3 mg/kg/day IV |
| Week 3 | 0.2 mg/kg/day IV |
| Week 4 | 0.1 mg/kg/day IV |
| Week 5 | Oral 4 mg per day |
| Week 6 | Oral 3 mg per day |
| Week 7 | Oral 2 mg per day |
| Week 8 | Oral 1 mg per day |

## Stage III

| Week | Dexamethasone |
|---|---|
| Week 1 | 0.4 mg/kg/day IV |
| Week 2 | 0.3 mg/kg/day IV |
| Week 3 | 0.3 mg/kg/day IV |
| Week 4 | 0.2 mg/kg/day IV |
| Week 5 | 0.1 mg/kg/day IV |
| Week 6 | Oral 4 mg per day |
| Week 7 | Oral 3 mg per day |
| Week 8 | Oral 2 mg per day |

| | |
|---|---|
| Week 9 | Oral 1 mg per day |

### 6.3 HIV vs Non-HIV

- **Non-HIV:** Standard treatment
- **HIV:** Start ART after 4 weeks of anti-TB treatment

### 6.4 Raised ICP

- Serial LP, mannitol, VP shunt if needed

### 6.5 Seizure

- Levetiracetam preferred

## 7. Monitoring

Clinical daily, LFT monthly, vision monthly.

## 8. References


1. Xu HB et al. *J Neurol Sci*. 2023.
2. WHO TB Guidelines. 2022.
3. Marais S et al. *Lancet Infect Dis*. 2010.
4. Thwaites GE et al. *N Engl J Med*. 2004.