SOUTHERN AFRICAN HIV CLINICIANS SOCIETY

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TB in Adults and HIV-TB co-infection

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Presentation outline:

➢ TB Diagnosis & Management in Adults

- History & Physical examination
- Laboratory diagnosis
- Chest X-ray Diagnosis
- Management

➢ HIV-TB Co-infection

- Introduction
- Impact of HIV on TB, TB impact on HIV
- HIV infection , clinical presentation of TB in HIV & Management
- Drug interactions (Pharmacokinetics)

1. TB Diagnosis & Management in Adults

1.1. Symptoms, History & Physical Examination

Symptoms: Cough, weight loss (unintentional), anorexia, Fever and night sweats, fever , Chest pain, Shortness of breath, Haemoptysis, Malaise and unusual tiredness

Medical History: Is there a history of previous TB treatment. When and for how long, family members, co-workers, friends with, TB or TB symptoms (Contact to TB/MDR/XDR TB), **History of other medical conditions** like diabetes, steroid dependent medication, HIV, **Employment history;** Mineworker/ ex-mineworker, Health care worker. **Habitat & Social history;**

Socioeconomic status, overcrowding, congregate setting NB; prison.

Physical examination: Non Specific; wasted, clubbing, pallor, chest abnormalities.

Laboratory Diagnosis:

1. **Molecular techniques (e.g. Line probe assay, GeneXpert):** GXP has a Short turn around time (2 hours) with identification of mycobacterium species and diagnosis of Drug resistant TB (DR TB).

2. **Microscopy:** Mainstay of NTP (id transmitters of TB, monitoring of treatment Success, accessible).

3. **Culture:** The gold standard for the diagnosis of TB, Adds sensitivity to diagnosis of TB in sputum specimens with, lower bacillary load (e.g. extra-pulmonary TB, HIV co-infected patients), regardless of drug susceptibility (Can detect as few as 10 Bacilli per millilitre, compared to > 5000 Bacilli /ml by microscopy), Allows further identification to distinguish between Tubercle Bacilli and other Mycobacteria.

4. **Culture and drug susceptibility testing (DST):** DST is required to make a definitive diagnosis of drug resistant TB (DR-TB) & It is the Gold standard in the diagnosis of drug resistant TB.

CHEST X RAYS

Challenges of CXR:

- May result in over diagnosis of TB
- Depends on the skill of the reader!

Indications for CXR:

- Complications but GXP is negative/ cant produce sputum and HIV positive
- If EPTB is suspected
- If complications of TB are suspected (pneumothorax, pleural effusions)
- Diagnose concomitant lung disease (cancer, lung abscess, bronchiectasis, pneumoconiosis)

- **Always interpret CXR in light of history and clinical examination**

TB Management

Registration of the patient: Register and notify the patient, Categorize TB patient , site of the disease, bacteriology results, clinically diagnosed (CXR, History and picture suggestive of TB, Histopathological and biochemical tests)

Treatment: RHZE (150,75,400,275) X 2 Months

:RH [150,75 or 300,150] X 4 Months

Adjunctive treatment: Pyridoxine (Vitamin B6) 25mg daily in all

:If Peripheral Neuropath develops (50-200)

: Steroids in ETB (TBM & PERICARDIAL TB)

MDR-TB: Standardized 9 months Regimen

Monitoring: Smear examination and clinical examination

HIV -TB Co-Infection

Introduction:

- 13.1% of South Africans are HIV Positive (7.25 million)
- High proportion are infected with TB [Estimated 60% of TB/HIV Co-infection in SA]
- TB is the leading cause of death in HIV positive patients
- Drug Interactions

IMPACT OF HIV ON TB

TB is associated with poor survival on TB (Immune activation, expression of cytokines & increased viral replication), Challenges in diagnosing TB.

IMPACT OF TB ON HIV

TB accelerates HIV disease resulting in quick progression of HIV to AIDS, life threatening IRIS.

HIV infection, clinical presentation of TB & diagnosis:

- Diagnosis is unchanged (History, Laboratory, CXR)
- HIV pos with TB may present with negative microscopy and normal CXR
- Diagnostic challenges arise due to:

None specific symptoms, absence of typical radiological features, negative microscopy and GXP, Down regulation of the body's immune response to MTB in HIV patients.

- A high index of suspicion should be exercised in HIV positive patients with TB symptoms and pneumonic presentations.

Pharmacokinetics

Rifampicin:

- Midas and mainstay of TB Programs (less expensive, less side effects, less toxicity)
- Has significant interactions with ARVs
- A potent inducer of cytochrome P450
- Increases metabolism & reduces plasma levels of hepatically metabolised drugs (NNRTI, PIs)
- Interaction with NNRTI: NNRTI levels reduced when given with Rifampicin (AUC of EFV reduced by 22%, and NVP by 37-58%)
- PIs: PI levels significantly reduced when co-administered with Rifampicin

Pharmacokinetics Continued

Action when prescribing ARVs on TB patients (Summary)

- Efavirenz & Nevirapine: No change
- Rilpirivine & Etravirine: Should not be used together with Rif

(**Reduced levels & altered metabolism-loss of virological response & possible resistance of the drug and other NNRTI class drugs)**

- Lopinavir/ ritonavir (Kaletra): Double the dose (if ritonavir is not available a single drug) i.e. Lopinavir 800/ritonavir200
- Lopinavir/ritonavir (Kaletra): Super boost by increasing dose of ritonavir i.e. Lopinavir 400/ritonavir 400
- Atazanavir: Should not be used together with Rifampicin

(Rifampicin decreases effects of Atazanavir-CYP450 induction)

- Raltegravir: Increase dose to 800mg BD
- Dolutegravir: Dolutegravir to 50mg BD

THANK YOU FOR LISTENING