Multi-drug resistant tuberculous spondylitis: A review of the literature

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1. Multi-drug resistant tuberculous spondylitis: A review of the literature. [1]

- Reviewed articles on MDR- TB spondylitis till December 2015
- Osteoarticular TB represents 1-2% and TB spondylitis 0.5- 1% of all TB cases
- Diagnosis of MDR- TB spondylitis is often delayed from 6 months to 2 years
- Culture and susceptibility testing are the gold standard for diagnosis
- Gene Xpert MTB/RIF is a faster test, with high sensitivity and specificity and has a lower limit of detection of 130 CFU/ml of bacilli compared to culture, which requires 10,000 CFU/ml
- Empirical therapy if necessary, should be based on drug exposure history, contact history, epidemiology and local drug resistance data, if available
- Minimum duration of therapy should be 18- 24 months
- Indications for surgery- neurologic deterioration, significant kyphosis, spinal instability, severe pain, and failure of medical management
- Review of an Indian study from Mumbai [2] showed that 87 (78.3%) cases of multi drug resistance (resistance to both isoniazid and rifampicin) and 3 (2.7%) cases of XDR-TB spine. They recommended routine biopsy, culture and drug sensitivity testing in all patients of tuberculosis spine [2]

2. Diagnosis and Treatment of Extrapulmonary Tuberculosis [3]

-Biopsy material (preferably granulation tissue) for mycobacterial culture should be submitted fresh or in a small amount of sterile saline

3. Drug resistance patterns in 111 cases of drug-resistant tuberculosis spine [4]

-78.3% were MDR and 2.7% were XDR- TB spine
-39.6% patients had taken ATT in the past for some form of TB
-Recommend routine biopsy, culture and sensitivity in all patients of TB spine for appropriate second line therapy when required highest resistance to isoniazid and rifampicin amongst the 1st line drugs; ethionamide and ofloxacin amongst the 2nd line drugs

4.Tuberculosis spine: Therapeutically refractory disease [5]

-India ranks 2nd among the high burden MDR- TB countries
-Study included 15 cases of TB spine not responding to 1st line drugs for minimum 5 months
-Only 3 cases demonstrated a positive culture; 2 of these had MDR- TB
-All were histopathologically positive
-Healing was achieved in 13 cases with 2nd line ATT, in spite of low culture yield.
-Clinical suspicion is important to detect MDR- TB
-Empirical 2nd line ATT can achieve good results in such cases with negative cultures

5. Drug-resistant tuberculosis in Mumbai, India: An agenda for operations research [6]

Mumbai is the ideal environment conducive to the spread of TB, failure of treatment and emergence of resistance on account of 12.5 million people being squeezed into 437km2

Mumbai houses 12% of the population of Maharashtra state, but accounts for 22% of notified cases of TB and — significant in terms of potential drug resistance — 50% of people undergoing retreatment after relapse

The emergence of drug-resistant TB in Mumbai is a prospect so alarming that the paucity of available evidence may be a case of 'out of sight, out of mind'.
-Available reports have consistently shown higher levels of MDR-TB than in other parts of India, at 24%–30% of new cases
-The problem of dropping out of a treatment programme and increasing

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the risk of development of MDR-TB is the result of an interplay of client and provider factors

6. RNTCP – Government TB Treatment Education & Care NSP The RNTCP in India [7]

The Joint TB Monitoring Mission (JMM)-Problems highlighted by the JMM report

The RNTCP was criticized for its continued use of a thrice weekly intermittent regimen and initiation of treatment without knowing the resistance profile of the patients, which contributes to the amplification of resistance.

Daily anti-tuberculosis treatment and initiation of Isoniazid Preventative Therapy for PLHIV has not started yet. GeneXpert is still not being used as the initial diagnostic tool for PLHIVs.

Drug resistant TB in India – Transmission, diagnosis, treatment

In general the regimen should comprise 6 drugs:
1. Pyrazinamide,
2. Ethambutol,
3. A later generation Fluoroquinolone (such as high dose Levofloxacin)
4. A parenteral agent (such as Kanamycin or Amikacin)
5. Ethionamide (or Prothionamide),
6. And either Cycloserine or PAS (P-aminosalicyclic acid), if Cycloserine cannot be used.

This regimen should be used during six to nine months of the intensive phase. Four drugs usually Levoflaxacin, Ethionamide, Ethambutol and Cycloserine, should be used during the 18 months of the continuation phase.

7. Nontuberculous mycobacterial infection of the musculoskeletal system in immunocompetent hosts [8]

Clinically and on histopathology, musculoskeletal infections caused by NTM resemble those caused by Mycobacterium tuberculosis but are mostly resistant to routine antituberculosis medicines. There has been an increasing incidence in recent years of infections in immunocompetent hosts. NTM infections in immunocompetent individuals are secondary to direct inoculation either contamination from surgical procedures (arthroscopy, local injections for dye based imaging) penetrating injuries rather than hematogenous dissemination.

-This series had 6 cases, 2 following open injuries, 2 following intra articular injections for imaging, 1 after arthroscopy and 1 after hydrocortisone injection in calcaneum. Agents which can be used for treating NTM infections are macrolides (clarithromycin, azithromycin); rifampin or rifabutin; ethambutol; doxycycline; quinolones (ciprofloxacin, moxifloxacin, and gatifloxacin); sulfonamides; amikacin; streptomycin; isoniazid; ethionamide; cefmetazole; and imipenem. Ideally 3 drugs have to be given for a period of 6 to 12 months based on clinical and radiological improvement. Whenever a case of chronic granulomatous infection is encountered, that does not respond to standard anti-tuberculous treatment, with a history of open trauma, and surgical intervention or injection, there should be clinical suspicion of a possible NTM infection. It is important to have a good communication between clinicians and microbiologists so as to optimize culture conditions.

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