Sp9: In a patient with coexisting pulmonary/systemic tuberculosis and a spinal lesion typical of TB, can drug therapy be started without Bone tissue biopsy and culture?

Saumyajit Basu, Shahid Akon, Hirokazu Inoue, Nick Shamie, Ayon Ghosh, Vikas Hanasoge

Recommendation:
Based on available literature it is evident that if there is a coexisting CNS tuberculosis / tuberculoma then drug therapy can be started on the basis of CSF analysis/ & MRI imaging but for TB in other areas it is recommended to start drug therapy after getting a tissue diagnosis with at least Xpert MTB/RIF.

Level of Evidence: Low

Delegate Vote:

Rationale:

Spinal tuberculosis classically leads to destruction of the intervertebral disc and the adjacent vertebral bodies, leading to progressive collapse, kyphosis and neurological deficit. Although clinical presentation, MRI findings and laboratory reports are suggestive of tuberculosis, a tissue diagnosis is often necessary for a firm diagnosis[1]. Xpert MTB/RIF assay for early detection of Mycobacterium tubercular spondylodiscitis and Rifampicin resistance[2].

Although pulmonary tuberculosis is the most common form of this disease, neuro-tuberculosis is more severe and presents higher morbidity and mortality. Thus, the diagnosis is largely based on suspicious symptoms, and the prognosis is directly related to the stage of the disease at the beginning of treatment[3.]

It is important to note that in most cases, the doctor will not have a definite diagnosis at the beginning of the treatment. However, this should not delay the initiation of therapy. A delay in initiating treatment, in most cases, is directly associated with a poor prognosis[3].

In CNS-TB CSF formula typically shows a lymphocytic pleocytosis, and low glucose and high protein concentrations. Diagnosis rests on serial samples of CSF for smear and culture, combined with CSF PCR. Treatment is most effective when started in the early stages of disease, and should be initiated promptly on the basis of strong clinical suspicion without waiting for laboratory confirmation. The initial 4 drug regimen (isoniazid, rifampin, pyrazinamide, ethambutol) covers the possibility of infection with a resistant strain, maximizes antimicrobial impact, and reduces the likelihood of emerging resistance on therapy. Adjunctive corticosteroid therapy has been shown to reduce morbidity and mortality in all but late stage disease[4].

Uncomplicated spinal tuberculosis is now a medical disease and can be effectively treated by multi-drug ambulatory chemotherapy and surgery is reserved for patients with instability, neurological deficit and prevention or correction of deformity[1].

The outcome following appropriate chemotherapy is generally good, with about 85-95% of patients showing improved outcome even when patients present with deformity and neurologic deficits[1].

References

1. Shetty, Ajoy Prasad, Rishi Mugesh Kanna and Shanmuganathan Rajasekaran. “TB spine—Current aspects on clinical presentation, diagnosis, and management options.” *Seminars in Spine Surgery* 28 (2016): 150-162.

2. Arockiaraj J, Michael JS, Amritanand R, David KS, Krishnan V. The role of Xpert MTB/RIF assay in the diagnosis of tubercular spondylodiscitis. Eur Spine J. 2017 Dec;26(12):3162-3169. doi: 10.1007/s00586-017-5076-9. Epub 2017 Apr 8. PMID: 28391384.

3. Rodrigues MG, da Rocha AJ, Masruha MR, Minett TS. Neurotuberculosis: an overview. Cent Nerv Syst Agents Med Chem. 2011 Dec 1;11(4):246-60. doi: 10.2174/187152491110604024 6. PMID: 22300226.

4. Leonard JM. Central Nervous System Tuberculosis. Microbiol Spectr. 2017 Mar;5(2):10.1128/microbiolspec.tnmi7-0044-2017. doi: 10.1128/microbiolspec.TNMI7-0044-2017. PMID: 28281443; PMCID: PMC11687486.