Central nervous system tuberculosis

Central nervous system tuberculosis is a devastating complication of systemic tuberculosis.

Epidemiology

Tuberculosis of the central nervous system accounts for approximately 1% of all cases of tuberculosis and 50% of these involve the spine.

Central nervous system (CNS) tuberculosis (TB) accounts for over 4% of all TB notifications in the United Kingdom, and causes death or significant disability in over half of those affected.

Pathogenesis

TNFα is a critical cytokine involved in the neuropathogenesis of central nervous system tuberculosis. Thalidomide has been trialled in CNS TB due to its immunomodulatory and immune reconstitution effects, through inhibition of TNF-alpha. Despite animal models demonstrating dramatic improvement in survival, studies in paediatric patients have been associated with higher levels of mortality. The effects of thalidomide have not yet been studied in adults with CNS TB. This narrative case series guides clinicians through a range of CNS TB clinical cases seen in a large London teaching hospital, serving a region with a high TB incidence of 32 per 100,000, with 55% of TB manifesting as extrapulmonary disease.

Keddie et al., aim to illustrate the experiences of using thalidomide to treat a range of severe CNS TB complications.

Five inpatients at the Royal London Hospital, London, UK treated with thalidomide in addition to standard TB treatment are described in detail. The rationale for treatment initiation with thalidomide is explained.

The case examples are used to guide our reflections and lessons learnt regarding the use of thalidomide. Responses to treatment and functional outcomes suggest thalidomide may be a useful adjunct to standard TB therapy in selected adult cases.

The experience gained from using thalidomide in this small case series may provide evidence towards more research into using thalidomide to treat severe CNS TB [1)].

Outcome

Central nervous system (CNS) tuberculosis is a potentially life threatening condition which is curable if the correct diagnosis is made in the early stages. Its clinical and radiologic manifestations may mimic other infectious and noninfectious neurological conditions. Hence, familiarity with the imaging presentations of various forms of CNS tuberculosis is essential in timely diagnosis, and thereby reducing the morbidity and mortality of this disease.

Types of neurosurgical interest

Involvement of the central nervous system (CNS) by a tuberculosis abscess is a rare form of extra-pulmonary tuberculosis. With proper treatment, the abscess most commonly follows a pattern of continued reduction in size.

Tuberculous meningitis

Intracranial Tuberculoma

Tuberculous meningitis

Tuberculous meningitis hydrocephalus.

Cerebellar tuberculosis

Spinal tuberculosis

Tuberculoma, miliary tuberculosis, abscess, cerebritis, and encephalopathy.

1)
Keddie S, Bharambe V, Jayakumar A, Shah A, Sanchez V, Adams A, Gnanapavan S. Clinical perspectives into the use of thalidomide for central nervous system tuberculosis. Eur J Neurol. 2018 Jun 23. doi: 10.1111/ene.13732. [Epub ahead of print] PubMed PMID: 29935038.