

Sp24: Is it safe to add corticosteroids in spinal tuberculosis with neurological deficit planned for conservative drug therapy.

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Recommendation:

The addition of corticosteroids in spinal tuberculosis with neurological deficit planned for conservative drug therapy appears to be safe and beneficial in carefully selected cases. They help reduce inflammation and prevent worsening of neurological deficits, particularly in Pott's paraplegia. However, routine use should be carefully considered, balancing the benefits of reducing inflammation against the risks of immunosuppression. Further clinical trials are needed to establish definitive guidelines for their routine application in conservative spine TB management.

Strength of recommendation: High

Delegate Vote:

Rationale:

Spinal tuberculosis, or Pott's disease, accounts for a significant proportion of osteoarticular tuberculosis cases. The disease can lead to vertebral destruction, abscess formation, and spinal cord compression, resulting in paraplegia or other neurological deficits. Standard management includes ATT, surgical intervention when indicated, and adjunct therapies such as corticosteroids. While corticosteroids have demonstrated efficacy in tuberculous meningitis (TBM) in reducing mortality and inflammation, their role in spinal tuberculosis is unclear [1,2]. Corticosteroids act by modulating the immune response, reducing inflammation, and minimizing oedema surrounding the affected spinal structures. They help reduce the mass effect of inflammatory exudates, thereby potentially improving neurological recovery. However, concerns remain regarding their potential to worsen immunosuppression and delay bacterial clearance [3]. Current guidelines recommend corticosteroids (typically dexamethasone or prednisolone) in significant spinal cord compression, usually starting at 0.75–1 mg/kg/day, followed by gradual tapering over weeks [4].

Several studies and case reports have documented the use of corticosteroids in STB patients with neurological deficits. Ayele et al [3] reported a case of 60y with paraparesis secondary to TB spine with progressive weakness. Anti-TB therapy along with steroids (for 5 months) was initiated and by the end of 5 months had completely recovered his neurology. A study in Sri Lanka demonstrated that a 4- to 6-week course of corticosteroids was safe and effective in STB with neurological involvement, provided there was no extensive skeletal destruction or large paraspinal abscess [5]. A review on CNS TB found that corticosteroids are particularly beneficial for tuberculous meningitis and spinal cord tuberculosis, especially when symptoms worsen despite ATT [6]. Evidence suggests that CNS tuberculosis, including spine TB, is associated with a high incidence of neurological sequelae, where corticosteroids may aid in reducing inflammatory responses but do not significantly alter long-term neurological outcomes [7]. Evidence from systematic reviews suggests that corticosteroids may help reduce mortality, though their effect on long-term neurological outcomes remains uncertain [1]. Corticosteroids have become a crucial drug in the management of cases with paradoxical response to ATT, characterized by the worsening of symptoms or new lesion formation known as Immune reconstitution inflammatory syndrome (TB-IRIS) [8]. A case series by Peter Loughenbury et al. [9] of maternal spinal tuberculosis with severe vertebral destruction and progressive weakness warranting urgent surgical management. It also highlights that

corticosteroids used for fetal lung maturation in third-trimester pregnancies complicated by spinal tuberculosis should be used cautiously due to the potential for worsening spinal infection.

While corticosteroids offer benefits in reducing inflammation, their use is associated with certain risks like:

1. **Immunosuppression and Infection:** Increased susceptibility to secondary bacterial and fungal infections.
2. **Delayed Bacterial Clearance:** Potential for prolonged bacterial survival due to immune suppression.
3. **Metabolic Side Effects:** Hyperglycemia, hypertension, and osteoporosis, especially in long-term use [Wan-Uk Kim et al [10]]
4. **Prolonged Corticosteroid Dependence:** prolonged corticosteroid therapy due to immune reconstitution inflammatory syndrome (IRIS) [Michèle Rebecca Weber[8]].

Consensus Statements and Level of Recommendation

1. Corticosteroids should be considered in STB patients with severe inflammatory edema causing significant neurological compromise. (Level of Recommendation: **Moderate to High**)
2. Short-term corticosteroids (4-6 weeks) may be beneficial in cases of paradoxical worsening of STB symptoms during ATT. (Level of Recommendation: **Moderate to High**)
3. Routine use of corticosteroids in all Spine TB patients without neurological deficits is not recommended. (Level of Recommendation: **Mild to Moderate**)
4. Long-term corticosteroid use should be avoided due to risks of immunosuppression, metabolic effects, and potential delay in bacterial clearance. (Level of Recommendation: **Moderate to High**)
5. Adjunct corticosteroid therapy should be individualized, with careful monitoring for adverse effects. (Level of Recommendation: **Moderate to High**)
6. Corticosteroids should be used with caution in pregnant patients with Spine TB due to risks of worsening infection and unclear benefits. (Level of Recommendation: **Mild to Moderate**)
7. In patients with immune reconstitution inflammatory syndrome (IRIS), corticosteroids may be required for a prolonged period, but should be tapered carefully to prevent recurrence. (Level of Recommendation: **Moderate to High**)
8. Corticosteroids may be considered in drug-resistant spinal TB where neurological worsening occurs despite appropriate second-line ATT. (Level of Recommendation: **Mild to Moderate**)

9. Based on host-directed therapy principles, Extended corticosteroid therapy may be warranted in cases with significant fibrosis or chronic inflammation. (Level of Recommendation: **Mild to Moderate**)

Conclusion:

Corticosteroids can be a valuable adjunct in managing spinal tuberculosis with neurological deficits, particularly in reducing inflammation and preventing deterioration. However, their use should be carefully considered, weighing the benefits against potential risks. Further clinical trials are needed to establish definitive guidelines for their routine application in conservative spinal tuberculosis management.

References:

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