Adjuvant Corticosteroid Therapy in the Management of Peritoneal Tuberculosis

Evidence and Controversies

Introduction

Peritoneal tuberculosis (TB) is a rare but severe form of extrapulmonary TB, often presenting with nonspecific symptoms that contribute to delayed diagnosis (Mahajan *et al.*, 2023). Globally, TB remains a major health concern, with 10.8 million new cases and 1.25 million deaths reported in 2023 (WHO, 2024). The proportion of extrapulmonary TB is 9.6% in Indonesia, 14–20% in Korea, and 6.1% in the United States (Lee, 2015; Simarmata *et al.*, 2024). Delayed diagnosis of peritoneal TB increases the risk of serious complications and worsens patient outcomes (Mahajan *et al*., 2023).

Metode

- Systematic Literature Review (2015–2025).
- Databases: PubMed, Scopus, Google Scholar.
- Inclusion: clinical trials, meta-analyses, clinical guidelines.

Management

The primary regimen for peritoneal tuberculosis follows the standard pulmonary TB protocol, consisting of isoniazid, rifampicin, pyrazinamide, and ethambutol during the intensive phase, followed by isoniazid and rifampicin in the continuation phase (WHO, 2022). The usual treatment duration is six months, which may be extended to nine months depending on clinical response (Gopalaswamy *et al.*, 2021). Corticosteroids, in cases of severe inflammation, have been reported to accelerate symptom resolution and reduce the risk of structural complications; however, they are not yet recommended as a routine component of therapy (Mi *et al.*, 2024; Kalbhande, 2024).

Mechanism of Corticosteroids

Corticosteroids suppress inflammation through genomic mechanisms, by binding to glucocorticoid receptors and regulating gene transcription to decrease proinflammatory cytokines while enhancing anti-inflammatory mediators (Mahardika *et al*., 2022; Hodgens & Sharman, 2023; Schutz *et al*., 2018). In addition, more rapid non-genomic mechanisms inhibit arachidonic acid release, block inflammatory mediators, and influence immune cell apoptosis (Schutz et al., 2018; Mahardika *et al*., 2022). Together, these mechanisms contribute to immune modulation and protection of peritoneal tissue.

Clinical Effectiveness

Clinical evidence from observational studies, systematic reviews, and case reports suggests that corticosteroids may accelerate symptom improvement, reduce ascites, and decrease the incidence of strictures and intestinal obstruction (Soni et al., 2019; Calin et al., 2021; Kalbhande, 2024). However, the overall quality of evidence remains low due to non-randomized study designs and small sample sizes (Soni et al., 2019). Therefore, the observed benefits cannot yet serve as a strong basis for routine clinical recommendations.

Current Guideline Recommendations

The WHO guidelines and the Indonesian National TB Clinical Practice Guidelines (PNPK TB) recommend adjuvant corticosteroid therapy only for tuberculous meningitis and pericarditis, while no routine use is advised for peritoneal TB. Therefore, corticosteroid administration should be considered on an individual basis, weighing potential risks and benefits, and requires close monitoring for adverse effects.

Controversies and Limitations

The use of corticosteroids remains controversial due to the potential for significant adverse effects, including hyperglycemia, immunosuppression, and secondary infections, particularly in patients with HIV or other comorbidities. The absence of large-scale randomized clinical trials in peritoneal tuberculosis limits the strength of current evidence, rendering it largely indicative. Consequently, global recommendations emphasize selective use based on specific clinical conditions rather than routine administration.

Evidence Gaps

The limited evidence on the role of corticosteroids in peritoneal TB highlights a significant research gap. Most available data are derived from case reports or small-scale studies with a high risk of bias. Large randomized clinical trials are needed to evaluate effectiveness, determine optimal dosage and treatment duration, and identify biomarkers that may predict which patient groups would benefit most.

Conclusion

Corticosteroids have potential as an adjuvant therapy in peritoneal TB, offering benefits in accelerating clinical improvement and reducing inflammatory complications. However, the risks of adverse effects and the limited strength of current evidence indicate that their routine use is not justified. Until stronger data are available, corticosteroid administration should be selective, restricted to cases with severe inflammation or immunopathological complications, and conducted under close monitoring in accordance with evidence-based practice.

References