

# The Collaborative Ocular Tuberculosis Study (COTS) calculator: A consensus-based decision making tool for initiating antitubercular therapy in ocular tuberculosis

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Ocular tuberculosis (TB) is a rare ocular condition, accounting for approximately 5% of the cases of uveitis in Brazil<sup>(1)</sup>. However, delayed diagnosis and treatment is associated with a significant risk of visual loss. Furthermore, it hinders the appropriate treatment of the underlying systemic disease<sup>(2,3)</sup>.

Diagnosing ocular TB is challenging due to its broad spectrum of clinical presentations and the absence of systemic TB manifestations or radiological evidence of a pulmonary infection. Laboratory diagnostic tests include tuberculin skin test (TST) and interferon- $\gamma$  release assays (IGRA). However, neither test can distinguish between latent and active TB. The current gold standard for the diagnosis of ocular TB is the detection of *Mycobacterium tuberculosis* in ocular fluids or tissues. However, a low ocular tissue load, small volume of samples, and low PCR sensitivity in ocular TB constitute significant limitations of this test<sup>(4,5)</sup>. Typically, a diagnosis of ocular TB is based on the clinical manifestations of TB uveitis, exclusion of other uveitic entities, and corroborative immunological or radiological investigations<sup>(2-5)</sup>. In the future, novel biomarkers, including multiomics, may play an important role in facilitating the diagnosis and management of ocular TB<sup>(5)</sup>.

The Collaborative Ocular Tuberculosis Study (COTS) Group is an international initiative of uveitis experts that was established to formulate guidelines for the diagnosis and management of ocular TB<sup>(2,3)</sup>. The COTS-1 study was a retrospective multinational cohort study that included the data of patients with ocular TB from 25 ophthalmic centers<sup>(3)</sup>. Thereafter, the COTS Consensus was developed to establish approved recommendations regarding the initiation of anti-TB treatment (ATT) in patients with suspected TB via a two-stage Delphi process<sup>(2)</sup>.

The concept paper introduced the COTS Group calculator, a simplified clinical web-based tool designed to guide ATT initiation in patients with suspected ocular TB. The calculator is based on the consensus guidelines from previous studies and can be accessed online (<https://www.ocular-tb.net/cots-calc>). The calculator incorporates possible real-world scenarios, even when ancillary investigations are not available, and is based on a minimum diagnostic criteria<sup>(6)</sup>. This calculator may be a valuable tool for general ophthalmologists that lack experience with ocular TB. However, the final decision to initiate ATT still depends on ruling out other uveitis etiologies, the epidemiology, and the patient's overall conditions<sup>(4)</sup>. Validation studies of the COTS Calculator are required to assess its specificity, sensitivity, and clinical utility.

In summary, the COTS group studies have substantially contributed to the understanding and management of ocular TB. Furthermore, the COTS calculator is practical and accessible, making it a tool that could improve the care of patients with ocular TB.

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