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CONSENSUS

Ocular tuberculosis: Position paper on diagnosis and treatment management

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KEYWORDS
Tuberculosis;
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Screening

Abstract Delay in diagnosis or treatment of ocular tuberculosis can result in loss of vision. However, due to the fact that early diagnosis is rarely achieved, there are still a broad variety of diagnostic and treatment approaches.

Our aim was to reach a consensus on the management of diagnosis and treatment of ocular tuberculosis.

Methods: Critical appraisal of the literature and expert opinion on diagnosis and treatment of ocular tuberculosis.

Results and conclusion: The currently recommended method for ocular TB diagnosis is screening for tuberculosis in any uveitis of unknown etiology, recurrent or not responding to conventional therapy; in ocular findings highly suggestive of ocular TB and before immunosuppression (particularly biologic agents). TB screening in these cases includes tuberculosis skin testing and interferon gamma testing, along with complete medical history, ophthalmologic evaluation and chest imaging. Positively screened patients should be treated for active tuberculosis with 4 drugs (isoniazid, rifampicin, pyrazinamide and ethambutol) for 6–9 months. Patients should be reviewed at the end of the initiation phase (two months) and at the end of the overall treatment (6–9 months).

Introduction

Intraocular tuberculosis (IOTB) is a great mimicker of various uveitis entities. This ability to mimic other infections is due in part to the location of infection, the host response, and the virulence of the organism.[1] The incidence of tuberculous uveitis (a presumed diagnosis) depends largely upon individual risk factors and the tuberculosis burden of the region.

As most of the patients with tuberculous uveitis do not have other systemic manifestations of the disease, the definitive diagnosis of tuberculosis would require isolation

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of *Mycobacterium tuberculosis* through procedures such as vitreous aspiration, aqueous paracentesis or retinal biopsy (with intrinsic risk), which have low sensitivity due to the small volume of material attainable.

Delay in diagnosis or treatment can result in vision loss but since the diagnosis is rarely achieved, there still are a broad variety of approaches to this clinical entity.

In this position paper, delegates from the Tuberculosis Committee of the Portuguese Society of Pulmonology and the Portuguese Society of Ophthalmology, coordinated by the Portuguese Tuberculosis National Program have compiled a critical revision of the literature on diagnosis, treatment and overall management of ocular tuberculosis.

The main aim of this paper is to standardize the procedures used to diagnose and treat ocular tuberculosis. This document summarizes the current knowledge and provides expert consensus recommendations on questions where scientific evidence is still lacking.

Methodology

The available literature was reviewed and the search for evidence included hand-searching journals, reviewing previous guidelines and searching electronic databases including MEDLINE and PubMed. Final decisions for formulating recommendations were based upon the result of the literature review and the practical experience of the experts.

Background

What should be the algorithm approach in the diagnosis of uveitis?

Complete past medical history

A detailed medical history is the key to diagnosis in the majority of cases of uveitis.[2] Medical history should focus on the immune status and the presence of collagen vascular diseases, infectious diseases (including tuberculosis, HIV, syphilis, Lyme and herpetic diseases) and inflammatory bowel disease. Knowledge of underlying diabetes, hypertension or coronary artery disease is essential for optimizing therapeutics.

Review of Systems

The review of systems is essential for developing a differential diagnosis for uveitis. A uveitis medical questionnaire can be used. Items of particular importance include history of oral or genital ulcers; tinnitus or hearing loss; headaches; malaise; chronic cough; shortness of breath; recent weight loss or gain; fevers, chills, or night sweats; recent contact with individuals with known tubercular disease; diarrhea or blood in the stool; skin rashes; arthritis (axial or peripheral); high-risk sexual activities; ingestion of undercooked meats or tainted water supplies; presence and types of pets; insect bites; or recent foreign travel. Based on the initial interview, the clinician will have established a reasonably complete differential diagnosis before examining the patient. It is important to observe the patient's overall health, noting in particular signs such as pallor and nutritional status.[3]

Table 1 The SUN* Working Group Anatomic Classification of Uveitis.

Type	Primary site of inflammation[a]	Includes
Anterior uveitis	Anterior chamber	Iritis Iridocyclitis Anterior cyclitis
Intermediate uveitis	Vitreous	Pars planitis Posterior cyclitis Hyalitis
Posterior uveitis	Retina or choroid	Focal, multifocal, or diffuse choroiditis Chorioretinitis Retinochoroiditis Retinitis Neuroretinitis
Panuveitis	Anterior chambre, vitreous, and retina or choroid	

[a] As determined clinically. Adapted from the International Uveitis Study Group anatomic classification.[4]
* SUN = standardization of uveitis nomenclature.

Ophthalmic examination

A complete ophthalmic examination should be performed. The conjunctiva should be examined for injection and granulomas. The following anterior segment findings should be documented: the presence of scleritis or keratitis; the presence, distribution, and qualitative characteristics of keratic precipitates; SUN scoring of anterior chamber cell and flare (Table 1); anterior and posterior synechiae; lens opacity or precipitates; and vitreous haze score (standardized Nussenblatt scheme). A complete dilated examination is mandatory, and the following should be recorded by drawing and photography: quality, quantity, and location of vitreous cells; optic nerve edema, hyperemia, pallor, and cupping; cystoid macular edema and choroidal neovascularization; presence, size, quality, and location of retinal and choroidal lesions; and state of the peripheral retina (with scleral indentation), including ''snowbanking'' (organized inflammatory cells on the inferior pars plana), neovascularization, and chronic retinal detachment. B-scan ultrasonography, optical coherence tomography, and fluorescein angiography are often necessary.[3]

Classification

Classification of uveitis is the first step toward developing a list of potential diagnoses that will help to determine appropriate diagnostic testing, guide therapy, and help determine prognosis.[2]

In 2005, the world's major uveitis societies initiated a standardization of nomenclature process (Standardization of Uveitis Nomenclature). The group established language for describing the presentation, chronicity, anatomic location, and severity of uveitis and its response to treatment (Table 1). The group affirmed that an anatomic classification

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