UVEITIS CRASH COURSE

A primer on the prevalence and epidemiology of uveitis.

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Uveitis, or inflammation of the uvea, is responsible for between 10% and 15% of all cases of blindness and for 30,000 new cases of legal blindness annually in the United States.[1,2] In up to 50% of cases, there is an underlying systemic disease,[3] and the practicing retina specialist should understand the presentation patterns and implications these diseases can have for patients. In this article, we review recent findings regarding the incidence, prevalence, and associations of this vision-threatening, multifarious disease.

INCIDENCE AND PREVALENCE

The overall incidence and prevalence of uveitis varies greatly among regions of the United States. A study in the 1960s reported an incidence of 17.4 new cases of uveitis per 100,000 persons per year.[2] However, more recent regional studies suggest that this may have been an underestimate. The true incidence of uveitis may be as high as 24.9 new cases per 100,000 persons per year in Hawaii and the Pacific Islands, 25.6 in the Pacific Northwest, and as many as 52.4 in Northern California.[4-6]

Another study recently demonstrated a prevalence of 31 cases per 100,000 person-years for children under age 18 years, 133 for adults aged 18-64 years, and 220 for those 65 years and older in the United States.[7] In the pediatric population, boys tended to be diagnosed with uveitis more than girls (55%; 34 vs. 29 cases per 100,000 person-years), and women were more likely to have uveitis than men (57%; 146 vs. 119 cases per 100,000 person-years). In 2015, there were roughly 328,019 cases of uveitis in the US adult population and 23,152 cases in the US pediatric population.[7]

ANATOMIC CLASSIFICATION

Uveitis is classified according to anatomic location: anterior, intermediate, posterior, or panuveitis.[8] Anterior uveitis is the most common, accounting for between 30% and 90% of cases.[9,10] Posterior uveitis is the second most common form, accounting for 4.7% to 30% of cases. Intermediate uveitis accounts for 1.4% to 12.2% of cases, and more than 60% of these cases are idiopathic.[2,9] Panuveitis accounts for 1.4% to 9.4% of cases.[11]

ETIOLOGY

In US adults and children, 91% and 95% of cases, respectively, are noninfectious.[7] Of adult noninfectious causes, only 9% can be attributed to a systemic immunologic condition.[9] With the exception of syphilis, in general, infectious causes of uveitis are decreasing in the United States.[11,12]

Sarcoidosis

Sarcoidosis, a disease in which abnormal collections of inflammatory cells form granulomas, accounts for approximately 1% to 3% of pediatric uveitis cases and 10% of adult uveitis cases and can present in many ways.[13] In the southeastern United States, sarcoidosis accounts for 25% of uveitis in black patients, who are more likely to have ocular involvement than whites.[14] Age of presentation is bimodal, with the incidence typically peaking in the third and sixth decades of life.[13] Ocular sarcoidosis most commonly presents bilaterally, and 90% of cases are chronic in nature, with a highly variable anatomic location of inflammation. A study of 112 eyes with sarcoid uveitis found that only 81% of cases presented in a classic granulomatous pattern. Due to these variable presentations, sarcoidosis should be included in the differential diagnosis of any patient with uveitis.

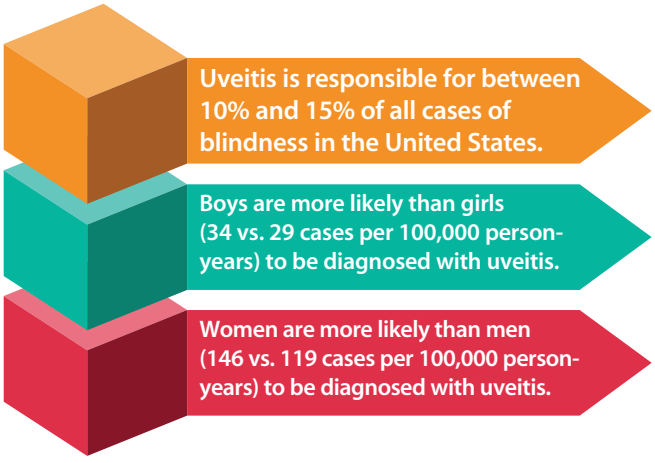
Toxoplasmosis

Toxoplasmosis is the most common form of posterior uveitis in the United States, accounting for between 2.8% and 10% of cases.[2,4,7,10,11,15] Current epidemiologic studies show a lower rate than previous studies, and a recent study found a 78% decline in prevalence of ocular toxoplasmosis in the period from 2008 to 2012, compared with the period

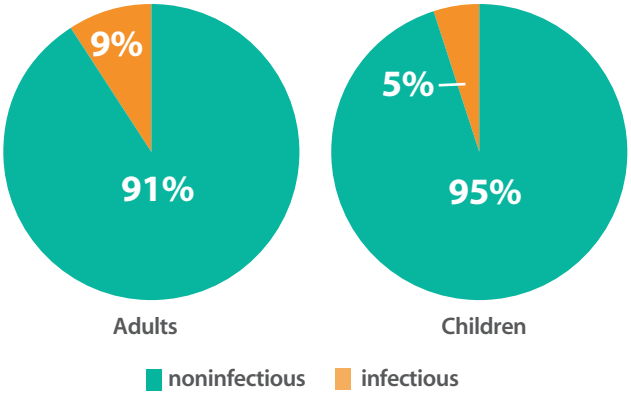
AT A GLANCE

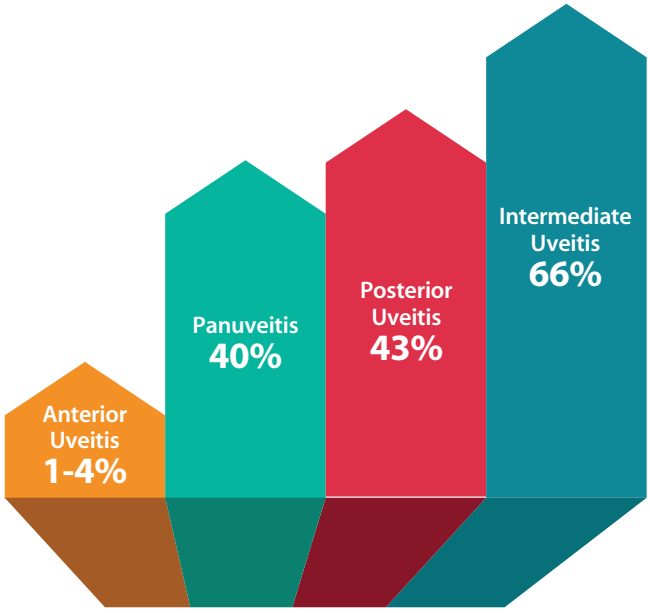
- Uveitis is generally more common in women and boys, and the prevalence of disease increases with age.
- Anterior uveitis is more common than posterior uveitis or panuveitis, and intermediate uveitis is rare.
- Noninfectious uveitis is much more common than infectious uveitis.

Snapshot of Uveitis



Noninfectious and Infectious Uveitis Cases in Adults vs. Children





Percentage of Uveitis Patients with 25% Visual Acuity Loss by Anatomic Location[21,22]

between 1973 and 1977.[12] The disease burden is anywhere from 2150 to 7500 cases each year.[12] Toxoplasmosis most commonly presents as a retinochoroiditis with overlying vitritis, and it is more common among Hispanic individuals in the United States.[12]

Syphilis

The number of cases of syphilis in the United States has climbed since 2000, with an increase in regional outbreaks of ocular syphilis since 2015.[16] Although ocular syphilis is rare, it is a treatable form of inflammation. It is estimated that syphilis accounts for 1.29% of all uveitis cases, and, of all patients diagnosed with syphilis, 0.46% to 0.6% are also diagnosed with uveitis, for an overall incidence in the United States of roughly four cases per million patients.[17] In general, patients tend to be younger men of a nonwhite ethnic group. Given the potential for syphilis to masquerade in many ways, it is important to test any patient presenting with uveitis for syphilis.

ARN and CMV

Acute retinal necrosis (ARN) and cytomegalovirus (CMV) retinitis are uncommon but potentially devastating forms of uveitis. ARN has an estimated minimum incidence of 0.5 to 0.63 new cases per million population and is caused by the human herpes family of viruses, most commonly herpes simplex 1 and 2, and by varicella zoster virus.[18,19] Cases are unilateral in 84.4% to 90.3% of patients and bilateral in 9.7% to 15.6% of patients, with bilateral cases presenting either simultaneously or within 3 months of each other, with no age or sex predilection.[18,19]

ARN often occurs in immunocompetent patients, with only 22.5% to 28.9% of cases in immunocompromised individuals.[18,19] CMV retinitis primarily affects immunocompromised individuals, especially those with human immunodeficiency virus.[20] Advances in antiretroviral therapy (ART) have led to a decrease in CMV retinitis from 14.8 per 100 person-years in the pre-ART era to 0.4 per 100 person-years in the modern era.[20] Overall visual outcome in most patients at 6 months is worse than 20/200.[18-20]

A DISEASE WITH SERIOUS CONSEQUENCES

Vision loss from uveitis can vary based on the location of the inflammation. A 25% loss of visual acuity occurs in 1% to 4% of patients with anterior uveitis, 43% of patients with posterior uveitis, 66% of patients with intermediate uveitis, and 40% of patients with panuveitis.[21,22] Other studies have indicated that up to 35% of patients with uveitis have visual impairment or

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blindness, with cystoid macular edema as the leading cause of vision loss followed by cataract formation and glaucoma.[3,23]

Given that multiple other conditions have similar presentations, it is important for retina specialists to perform a differential diagnosis of all patients with uveitis so that treatment, if necessary, can be initiated as early as possible. ■

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