



PATTERN OF UVEITIS AT TERTIARY CARE CENTER, MUZAFFARPUR, BIHAR, INDIA.

Ophthalmology

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ABSTRACT

Objectives: The present study was to evaluate the various aetiologies and pattern of uveitis in tertiary care centre of Muzaffarpur, Bihar, India. **Methods:** A total of 350 patients of uveitis were enrolled. Patients were classified according to the International Uveitis Study Group definitions based on the anatomical locations comprising anterior (iritis/iridocyclitis), intermediate (inflammation in posterior ciliary body and vitreous cavity), posterior (intraocular inflammation primarily involving the retina and choroid), and panuveitis (inflammation in the anterior chamber, vitreous, retina, and choroid). Patients with mutton-fat keratic precipitates, iris nodules, or choroidal or optic nerve head granuloma were classified as having granulomatous uveitis. Other cases with small keratic precipitates on the posterior corneal surface were classified as non-granulomatous uveitis. **Results:** Mean age of the patients was 33.12±22.67 years. Male patients were 155(44.29%) and female patients were 195(55.71%). Most of the patients 244(69.71%) were unilateral eye involvement. Histologically, most of the patients 302(86.29%) were non-granulomatous. 208(59.43%) patients had specific etiologies. Anterior uveitis was the most common. Which was seen in 194(55.43%) patients. Posterior uveitis was seen in 81(23.14%) cases. Panuveitis was seen in 56(16%) uveitis patients. 28(8%) Seronegative spondyloarthritis and Presumed TB, 26(7.43%) Herpetic uveitis, 23(6.57%) Fuchs heterochromic iridocyclitis and 20(5.71%) Toxoplasmosis were the most common specific aetiologies of uveitis. **Conclusions:** Unilateral involvement was greatly seen in uveitis patients. More preponderance in Females. Anterior uveitis was the most common according to anatomical location. Second most common was posterior uveitis. Majority of uveitis patients had specific etiologies. Seronegative spondyloarthritis, Presumed TB, Herpes simplex infection and Fuchs heterochromic iridocyclitis were the most common etiologies of uveitis. Hence, Uveitis is a vision threatening ocular disorder with numerous etiologies. Prompt diagnosis and early management should be mandatory for uveitis patients.

KEYWORDS

Uveitis, Pattern, etiology

INTRODUCTION

Uveitis is a vision threatening inflammatory process of the uvea, which involves the iris, ciliary body, and choroid. Clinically, it can be classified into infectious and non-infectious, in which the pathophysiology is presumed to be immune-mediated in nature [1,2]. The spectrum of etiology of "uveitis" is very vast and it can be variable due to complexities in the etiology, geography, racial, nutritional and socio-economic differences [3]. Severe visual loss due to uveitis accounts for 10% of blindness in the Western world [4].

Due to ocular inflammation, 5–20% of population suffers from legal blindness in developed countries and up to 25% in the developing world [5]. In India, overall incidence differs regionally with a predictable occurrence of nearly about 730 cases/lakh [6].

Both infectious and non-infectious etiological factors cause uveitis. However, the etiology remains unknown in a majority of cases. Owing to the multitude of etiology, the internationally accepted classification system of uveitis as per the current International Uveitis Study Group (IUSG) Classification system is based on anatomical location of inflammation rather than the etiology [7]. Etiology and clinical presentation of uveitis may vary depending upon the population, genetic make-up, environmental factors, and many other factors including available medical and laboratory facilities.

The correct diagnosis of uveitis is often challenging as these patients present with a plethora of ocular as well as systemic signs and symptoms. Despite improved understanding of the etiopathogenesis and evolution of advanced diagnostic techniques, the etiology of uveitis still remains elusive in a significant number of cases [8]. In different parts of the world, various patterns and distributions of uveitis were most likely due to the variations in geographic, genetic, or alimentary factors.

Epidemiologic studies help in determination of the causes of uveitis and their prevalence. Collaborative studies between different areas would be most helpful in establishing etiology and pattern of uveitis. This helps to devise appropriate measures for prevention and treatment [8]. Objective of the present study was to evaluate the various aetiologies and pattern of uveitis in tertiary care centre of, Muzaffarpur, Bihar, India.

MATERIAL & METHODS

The present study was conducted in the Department of Ophthalmology, SKMCH, Muzaffarpur, Bihar, India during a period from January 2020 to November 2022. Entire subjects or their guardians signed an informed consent approved by the institutional ethical committee.

A total of 350 patients of acute uveitis who attending the outpatient department of were enrolled in the present study.

Inclusion Criteria:

Only one eye of each patient was included in the study. In bilateral cases, the eye with more severe disease (higher grade of anterior chamber reaction or worse BCVA if inflammation was symmetrical) was included.

Exclusion Criteria:

Patients with post-operative uveitis, trauma, endophthalmitis, or Eales disease were excluded from the study.

Procedures:

After taking a detailed clinical history, all patients underwent ophthalmologic examinations, including the determination of Snellen visual acuity, slit-lamp biomicroscopy, applanation tonometry, dilated fundus examination, and thorough physical examination.

The laboratory tests were performed in a tailored approach depending upon the eye examination findings and systemic symptom associations.

Complete blood count, erythrocyte sedimentation rate, urinalysis, C-reactive protein level, venereal disease research laboratory test or fluorescent treponemal antibody absorption for syphilis, chest X-ray or high-resolution computed tomography of the chest for sarcoidosis and tuberculosis (TB), sputum smear and culture and purified protein derivative skin test for TB, polymerase chain reaction of aqueous and vitreous samples for tubercular, herpetic, and cytomegalovirus uveitis, anti-toxoplasma and anti-Toxocara antibody assessment, antinuclear antibody testing, antineutrophil cytoplasmic antibody testing, angiotensin-converting enzyme level, human leukocyte antigen

(HLA) typing, and HIV I and II testing were performed in appropriate cases.

Whenever a specific ocular cause or any systemic disease was not detected, despite all ocular and systemic evaluations, the disease was classified as "idiopathic."

Patients were classified according to the International Uveitis Study Group definitions based on the anatomical locations comprising anterior (iritis/iridocyclitis), intermediate (inflammation in posterior ciliary body and vitreous cavity), posterior (intraocular inflammation primarily involving the retina and choroid), and panuveitis (inflammation in the anterior chamber, vitreous, retina, and choroid). Patients with mutton-fat keratic precipitates, iris nodules, or choroidal or optic nerve head granuloma were classified as having granulomatous uveitis. Other cases with small keratic precipitates on the posterior corneal surface were classified as non-granulomatous uveitis.

OBSERVATIONS

In the present study, a total of 350 uveitis patients with age group 5 years to 70 years were included. Mean age of the patients was 33.12±22.67 years. Male patients were 155(44.29%) and female patients were 195(55.71%).

Table.1. Gender Wise Distribution Of Uveitis Patients.

Gender	Frequency
Male	155(44.29%)
Female	195(55.71%)
Total	350(100%)

According to laterality, most of the patients 244(69.71%) were unilateral eye involvement. Bilateral involvement was seen in 106(30.29%). Histologically most of the patients 302(86.29%) were non-granulomatous. 48(13.71%) patients were granulomatous.

Table.2. Demographic Profile Of Patients With Uveitis

Characteristics	Frequency
Mean age (Years)	33.12±22.67 (5 years to 70 years)
Laterality	
Unilateral	244(69.71%)
Bilateral	106(30.29%)
Total	350(100%)
Histologic type of uveitis	
Granulomatous	48(13.71%)
Non-granulomatous	302(86.29%)
Total	350(100%)

In the present study, 142(40.57%) cases had the idiopathic etiologies. Rest had specific etiologies. 28(8%) Seronegative spondyloarthropathy and Presumed TB, 26(7.43%) Herpetic uveitis, 23(6.57%) Fuchs heterochromic iridocyclitis and 20(5.71%) Toxoplasmosis were the most common specific aetiologies of uveitis. Anterior uveitis was the most common uveitis. Which was seen in 194(55.43%) patients. Posterior uveitis was seen in 81(23.14%) cases. Intermediate uveitis was seen in 19(5.43%) patients. Panuveitis was seen in 56(16%) uveitis patients.

Table.3. Etiology Of Different Types Of Uveitis

Etiology	Anterior	Intermediate	Posterior	Panuveitis	Total
Idiopathic	95 (48.97%)	9 (47.37%)	25 (30.86%)	13 (23.22%)	142 (40.57%)
Fuchs heterochromic iridocyclitis	22 (11.34%)	1 (5.26%)	-	-	23 (6.57%)
Seronegative spondyloarthropathy	23 (11.86%)	3 (15.79%)	-	2 (3.57%)	28 (8%)
Herpetic uveitis	22 (11.34%)	1 (5.26%)	-	3 (5.35%)	26 (7.43%)
Behçet's disease	-	-	8 (9.87%)	5 (8.93%)	13 (3.71%)
VKH disease	-	-	8 (9.87%)	10 (17.85%)	18 (5.14%)
Juvenile idiopathic arthritis	7 (3.61%)	-	-	6 (10.72%)	13 (3.71%)

Presumed TB	13 (6.70%)	3 (15.79%)	8 (9.87%)	4 (7.14%)	28 (8%)
Sarcoidosis	8 (4.12%)	2 (10.52%)	4 (4.93%)	2 (3.57%)	16 (4.57%)
Toxoplasmosis	-	-	18 (22.22%)	2 (3.57%)	20 (5.71%)
Toxocariasis	1 (0.51%)	-	3 (3.70%)	-	4 (1.14%)
Serpiginous choroidopathy	1 (0.51%)	-	5 (6.17%)	1 (1.78%)	7 (2%)
Cytomegalovirus retinitis	1 (0.51%)	-	2 (2.46%)	-	3 (0.85%)
Multifocal choroiditis	1 (0.51%)	-	-	5 (8.92%)	6 (1.71%)
Sympathetic ophthalmia	-	-	-	3 (5.35%)	3 (0.85%)
Total	194 (55.43%)	19 (5.43%)	81 (23.14%)	56 (16%)	350 (100%)

DISCUSSIONS

Uveitis is broadly defined as the inflammation of uveal tract, which may also be accompanied by inflammation of adjacent ocular structures like the retina, sclera, cornea, vitreous, and optic nerve.

In the present study, uveitis was the more common in females than males, which was consistent with the studies of Rahimi and Mirmansouri and Khairallah et al. [9,10] However, Das et al. and Singh et al. found a male predominance in North and Northeast India [11,12]. Uveitis mostly affects young adults placing a large economic burden on the individual and society [13]. In the present study, the mean age of onset was 33.12±22.67years (range: 5–70 years). Most of the patients had unilateral eye involvement 244(69.71%).

The study conducted by Das D et al. [14] at Guwahati, Assam; maximum patients (69.6%) were in the age group of 20–29 years. In the study conducted by Madhavi KM et al., [15] maximum patients (64%) were seen in the age group of 20–40 years.

Frequent unilateral presentation in anterior uveitis and bilateral presentation in intermediate and panuveitis has been documented in many studies [16,17] and a similar pattern is noted in our study also.

In the present study, most of the patients had unilateral eye involvement 244(69.71%). In Biswas J et al., [18] study 30.4% cases presented with unilateral involvement while, 69.6% cases presented with bilateral involvement.

In the present study, most of the patients 302(86.29%) were non-granulomatous. 208(59.43%) patients had specific etiologies. Most common specific etiology was 28(8%) Seronegative spondyloarthropathy, presumed TB, 26(7.43%) Herpetic uveitis, 23(6.57%) Fuchs heterochromic iridocyclitis and 20(5.71%) toxoplasmosis. which is similar to other studies that reported the rates ranging from 47.1% to 71.5% [19,18]. However, there are large inconsistencies among investigators regarding the use of diagnostic tests for uveitis, which necessitate the evidence-based guidelines [20]. In the present study, anterior uveitis was the most common according to anatomical location. Which was seen in 194(55.43%) patients. Posterior uveitis 81(23.14%) was the second most common. Intermediate uveitis was seen in 19(5.43%) patients. Panuveitis was seen in 56(16%) uveitis patients.

With regards to the anatomical location, studies across India have uniformly shown anterior uveitis to be the most common anatomical location encountered in clinical practice, following which either posterior or panuveitis has been noted. Intermediate uveitis was the least frequently encountered site of ocular inflammation [21,22].

Singh et al. in a retrospective study on 1233 uveitis patients, in a referral center in North India observed that anterior uveitis was the most common (49.23%), followed by posterior uveitis (20.23%), intermediate uveitis (16.06%), and panuveitis (14.68%) [11.] Das et al. conducted an institutional-based retrospective study of 308 uveitis patients and analyzed the pattern of uveitis in Northeast India. Anterior uveitis was the most common type (47.07%), followed by posterior (29.87%), intermediate (12.98%), and panuveitis (10.06%) [12]. In our study, anterior uveitis was the most common type, but the intermediate variety was the least common.

Biswas et al. studied the pattern of uveitis in South India. A specific diagnosis was identified in 66.2% of cases. Anterior uveitis was seen in 35.22%, intermediate uveitis in 30.11%, posterior uveitis in 25%, and panuveitis in 9.65% of cases. They found that TB was the most common cause of posterior uveitis, in contrast to toxoplasmosis in our study [8].

Anterior uveitis was the most common variety of uveitis in our study, followed by posterior uveitis, panuveitis, and intermediate uveitis. Most cases were unilateral and nongranulomatous, similar to the other studies [11,9]. We found that idiopathic anterior uveitis was the most common cause of anterior uveitis, similar to the results from South India, North India, and Southern Iran [11,9,22]. However, this was different from a report from Iran where Behçet's disease and Fuchs heterochromic iridocyclitis were the more prevalent [23]. Posterior uveitis was the second most common type of uveitis, similar to most other studies [11,9,22]. However, a study in Northeast Iran showed it to be the least common, after panuveitis, anterior uveitis, and intermediate uveitis [19]. Toxoplasmosis was the most common cause of posterior uveitis in our study, similar to the findings reported by Rahimi and Mirmansouri and Mercanti et al. [9,18]. However, Singh et al. found that serpiginous choroidopathy was the leading cause of posterior uveitis in North India [11]. Panuveitis was more common than intermediate uveitis in our study, consistent with the findings from North Africa, Northeast India, North India, and South Iran [11,9,24,12].

Camilo et al. in a prospective, observational study of patients with active uveitis in an emergency eye care center in Brazil observed that the most frequent symptoms were ocular pain (76.9%), eye redness (59.8%), and visual blurring (46.2%). Anterior uveitis was observed in 70.1% patients, posterior uveitis in 26.5%, and panuveitis in 3.4% [25]. In an Italian study by Cimino et al., the most frequent causes of uveitis were Fuchs' uveitis, herpes, toxoplasmosis, HLA B27-associated uveitis, and Behçet's disease [26].

Though a number of studies from India [27,19,14] that have compared the changing trend of uveitis have documented a significant increase in cases with specific etiological diagnosis, still 30%–60% of cases remain to be idiopathic in origin. In the present study, 56.7% of cases were idiopathic. The relatively higher number of idiopathic cases in our study could be due to multiple factors like unavailability of sophisticated molecular laboratory investigations as the institute is newly set up. Many patients belonged to a difficult geographic terrain with limited laboratory resources.

CONCLUSIONS

The present study concluded that the unilateral eye involvement was greatly seen in uveitis patients with more preponderance in Females. Anterior uveitis was the most common according to anatomical location. Second most common was posterior uveitis. Majority of uveitis patients was of idiopathic etiology. Seronegative spondyloarthropathy, Presumed TB, Herpes simplex infection and Fuchs heterochromic iridocyclitis were the most common etiology of uveitis. Hence, Uveitis is a vision threatening ocular disorder with numerous etiologies. Prompt diagnosis and early management should be mandatory for uveitis patients.

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