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A STUDY OF CLINICAL AND ETIOLOGICAL PATTERN AND SEASONAL VARIATION IN THE INCIDENCE OF ANTERIOR UVEITIS AT A TERTIARY CARE CENTER

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ABSTRACT **Purpose:** The aim was to study the various pattern and any seasonal variation in the incidence of anterior uveitis at a tertiary care center. **Methods:** An observational study was conducted on 100 patients of all new uveitis cases who attended the OPD between January 2020 to December 2021 of a tertiary care center, J.L.N. medical college and hospital, Ajmer, Rajasthan. We grouped the months into winter, autumn, monsoon, spring and summer according to Indian weather. Cases were screened along with detailed clinical and laboratory investigation to find out there clinical etiological causes. **Result:** 100 Patients of uveitis were examined. There was male predominance (66%) with male to female ratio 1.94:1. We found cases with unilateral (91%) uveitis to be more common, with more Right eye (48%) involvement. Majority (40%) of cases remained idiopathic. HLA-B27 (37%) was commonest association followed by lens induced and Tuberculosis. The incidence of uveitis in winter season (38%) followed by 33% in transitional season and 29% in summer. **Conclusion:** Non-infectious uveitis were more common. In Non-infectious uveitis, most common entity found to be Idiopathic and HLA-B27 associated whereas in infectious uveitis, ocular tuberculosis was found to be the leading cause. Seasonally uveitis were more in winter and less in summer.

INTRODUCTION

Uveitis is a potentially sight threatening inflammation which can lead to blindness. Around 5%–20% of cases of legal blindness in developed countries and 25% of blindness in the developing countries are due to uveitis.[1] Early detection and timely treatment are of great importance in case of uveitis.[2]

Anterior Uveitis is an intraocular inflammatory heterogenous group of disease of uveal tissue (iris, ciliary body and choroid). Anterior uveitis causes painful red eye with mild to severe inflammation which leads to variable degree of vision loss.

The study of uveitis is complicated by the fact that the cause of inflammatory reaction can be infectious, traumatic, neoplastic, autoimmune or idiopathic. The etiology of uveitis is largely affected by multiple factors like racial, geographical, environmental factors. Uveitis has strong impact on the socio-economic condition of the society as it affects all age group people in all region.

The objective of our study was to identify the clinical and etiological spectrum of anterior uveitis. Also, to determine if there was a seasonal variation in the incidence of uveitis.

METHODS

The study included all new cases of uveitis over the 2 year period from January 2020 to December 2021. The study was conducted after taking an informed consent from cases or their relatives at Department of Ophthalmology, J.L.N. medical college and hospital, Ajmer [Rajasthan].

All the patients who attended Outpatient Department with signs and symptoms of uveitis and who fulfilled the inclusion criteria were enrolled in the study. The patients were excluded having all types of any conjunctivitis, physical and chemical burn, any current ocular surgery, orbital cellulitis, episcleritis, scleritis and if associated with the intermediate, posterior or panuveitis were excluded from this study. Masquerade syndromes associated anterior uveitis has also been excluded.

A detailed sociodemographic and complete systemic examination from all the patients was recorded. Detailed local ocular examination of affected eyes was done which included Visual acuity using Snellens visual acuity chart, Anterior segment examination by slit lamp, Fundus examination (direct and indirect ophthalmoscopy), IOP measurement by Goldman Applanation Tonomtery. Relevant Laboratory Investigation like CBC, Erythrocyte sedimentation rate and Montoux test were done. Serological tests for syphilis, HIV, Rheumatoid factor, Serum CRP, ALSO, Widal test was done in all cases. Radiological investigations included X-ray of chest, lumbosacral and SI joints. Other special investigations like HLA B-27, ANCA, ANA, ELISA, ANTI-CCP, SERUM ACE was also considered whenever necessary.

the etiological diagnosis was made based on clinical history, clinical features, laboratory investigations and systemic evaluation. The term idiopathic uveitis was used when clinical examination and laboratory test failed to establish any diagnosis.

We grouped months of year into seasons as winter (November to February), spring (March to April), Summer (May to June), Monsoon (July to August) and autumn (August to October) according to Indian season. We take monsoon, autumn or spring as transitional season in this study.

RESULTS

The study contain 100 newly diagnosed patients with uveitis during the study period.

Sociodemographic distribution

Out of total cases, 66 patients were male and 34 patients were female, thus male:female ratio was found to be 1.94:1. Most of the cases of uveitis occurred in the 2nd and 3rd decade of life . The mean age of presentation was found to be 39.44±13.49 in

male and 38.8±12.9 In female. 78 patients belong to urban area and 22 patients belong to rural area. (Table No. 1)

Table 1 : Sociodemographic characteristics of the patients

characters			Number n=100(%)
SEX			
	Male		66
	Female		34
Age			
	0-20		2
	20-40		51
	40-60		42
	60-80		5
Occupations			
	Driver		10
	Farmar		18
	Govt Job		13
	Housewife		19
	Labour		21
	Private Job		19
Residency			
	Rural		22
	Urban		78

Clinical and Laterality distribution

The laterality were 9 patients had bilateral involvement and 91 had unilateral involvement, out of which 48 patients had right eye involvement while 43 patients had left eye involvement.

Out of 100 patients, 81 had Acute anterior uveitis, 11 recurrent uveitis and rest 8 had chronic presentation. (Table 2).

Table 2: Clinical characteristics of the patients

Characters			Number n=100(%)
Laterality			
	Unilateral		91
	Bilateral		9
Clinical			
	Acute		81
	Recurrent		11
	Chronic		8
Types of inflammation			
	Non-Granulomatous		89
	granulomatous		11
Types of uveitis			
	Infectious		9
	Traumatic		6
	Non-infectious		85

Etiological distribution

Out of total cases, most of the cases were noted to be idiopathic. Among the identifiable causes, HLA-B 27 association was the most common, followed by tuberculosis, lens induced and blunt trauma.(Table no. 3)

Table 3: Etiological characteristics of the patients

Etiology	percentage
Idiopathic	40
HLA-B27	37
Lens induced	7
Tuberculosis	7
Blunt trauma	6
Herpes	1
leprosy	1
Fuch's Heterochromic	1

Complications

Persistent posterior synechiae was the most common complication followed by complicated cataract. Secondary glaucoma was also seen in 5 cases and iris atrophy in 11 cases. Nearly 42 patients had no complication. (Table no. 4)

Table 4: Complications of the patients

Complication	percentage
Nil	42
persistent posterior synechiae	32
complicated cataract	10
secondary glaucoma	5
iris atrophy	11

Seasonal distribution

From this study we found that 38% of the cases presented during winter season followed by 33% in transitional season and 29% in summer. But no season has conferred statistical significance.(Table no. 5)

Table 5: Seasonal characteristics of the patients

Season	2020	2021	Total	P Value
Winter (P1)	17	21	38	P1 Vs P2 = 0.590
Transitional (P2)	15	18	33	P1 Vs P3 = 0.231
summer (P3)	13	16	29	P2 Vs P3 = 0.646
Total	45	55	100	

DISCUSSION

In our study, 51% of the patients were between 20-40 years of age group and 42% of patients were aged between 40-60. This age predilection is similar to Rathinam et al.[3], Singh R et al.[4], Kumaraswamy et al.[5] and Tegginamatha N et al.[6]

These variations in age may be due to the inter-individual variation in controlling the disease till certain age and losing the tolerance after the susceptibility factors and even ethnicity also matters.

Males (66%) were affected more than females in present study which was comparable with Rathinam et al.[3] study (61.3%) And Tegginamatha N et al.[6] (60%) and Kumaraswamy et al.[5] But in contrary Alezandro Rodriguez et al.[7] reported female preponderance of the disease.

This may be because men tends to seek medical attention more often than women and socioeconomic habits may put male cases at a greater risk for development of uveitis.

Majority of patients in our study were labourers by occupation (21%) which is comparable to Kumaraswamy et al.[5] study. Majority of patients came with unilateral presentation (91%). This finding was comparable with that of Rathinam et al.[3] study (85.3%) and Kumaraswamy et al.[5] (90%) and Tegginamatha N et al.[6] (86.6%). However, there was no significant predilection of uveitis for either the left or right eye.

The most common presentation was acute (81%) followed by recurrent (11%) and chronic (8%). This was comparable to Kumaraswamy et al.[5] study that reported about 75.6% acute uveitis and 17.8% of chronic uveitis and Tegginamatha N et al.[6] which reported acute (60%) followed by chronic (23.3%) uveitis.

In present study, 89 patients had Non-granulomatous inflammation and 11 patients had granulomatous inflammation. the findings were consistent with previous studies.[8][6][3][7] Kumaraswamy et al.[5] reported in 156 patients, (90%) had Non-granulomatous inflammation and (10%) was granulomatous.

Out of total cases, most of the cases were noted with idiopathic etiology (40%). Among the identifiable causes, HLA-B 27 association (37%) were most common followed by tuberculosis (7%), lens induced (7%) and blunt trauma (8%).

Kumaraswamy et al.[5] show blunt trauma (20%) was the most common cause of anterior uveitis followed by phacolytic (12%) etiology. Although herpes zoster accounted for 10% of the cases, is not common in the present study. However, Tb was the most common infectious cause in our study. 7% of the patients had tubercular anterior uveitis which is comparable with Rathinam et al.[3] and Kumaraswamy et al.[5] and Singh et al.[4] study. Tegginamatha N et al.[6] reported herpetic infection (16.6%) was the most common identified cause of anterior uveitis followed by lens induced inflammation (13.3%) and tuberculosis (13.3%).

The most common complication observed was persistent posterior synechiae (42%) followed by secondary glaucoma (5%), complicated cataract (10%) and Iris atrophy (11%). Kumaraswamy et al.[5] observed was persistent posterior synechiae in 45 eyes (23.43%), cataract in 28 eyes (14.6%). Secondary glaucoma was seen in 24 eyes; Iris atrophy was seen in 11 eyes (5.73%) and macular edema was seen in 4 eye (2.1%).

Tegginamatha N et al.[6]observed was persistent posterior synechiae (33%) followed by secondary glaucoma (30%), complicated cataract (20%) and Iris atrophy (13%). Rothova et al.[9] reported cataract in 19% of cases and glaucoma in 11%.

The incidence of uveitis cases showed that 38% of the cases presented during winter season followed by 33% in transitional season and 29% in summer.

Our study shows that incidence of uveitis were more in winter season which was accordance with the observational study, Kawali A et al.[10]Similarly, Hina Kauser et al [12], in their study reported higher number of cases found in winter followed by transitional season and minimum in summers in both the consecutive years. A study done by Päivönsalo-Hietanen T et al [11]reported increased incidence of uveitis cases in the warm and transitional seasons.

This could be due to regional temperature variation which may not be similar in different seasons in different places over the planet. We assumed this shift may be have a relation with the global climate changes seen over years. This was one of the reasons that we studied the incidence in the last 2 years.

CONCLUSION
As uveitis disease is a significant cause of socio-economic blindness, we believe that periodic surveys such as our study will provide us with essential and useful data for obtaining the correct diagnosis of uveitis. Anterior uveitis is a vision threatening disease with varied causes but mostly the etiology remains unknown. Hence, a valid diagnosis and early initiation of treatment can save the vision without significant complication. Although the difference in the incidence of uveitis cases among the seasons was not statistically significant in our study, a distinctly higher number of cases were seen in winters. As our study have a small sample size and short period, studies having larger sample size and a longer period would be required for better evaluation of the pattern of uveitis and determine seasonal variation to the incidence rates.

Declaration of patient consent
The authors certify that they have all appropriate patients consent forms in written. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the article.

Conflicts of interest
There are no conflicts of interest.

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