Original Research Paper

Ophthalmology

STUDY ON CLINICAL PROFILE OF UVEITIS IN PATIENTS ATTENDING RIO, A TERTIARY EYE CARE CENTRE

Dr Rajeevan. P	Additional Professor, Rio, Govt Eye Hospital Medical College Trivandrum
Ms Parvathy*	Optometry Intern. Rio Trivandrum *Corresponding Author

KEYWORDS :

INTRODUCTION

Uveitis is a sight threating inflammation inside the eye that affects both the uveal tract (which is composed of the iris, ciliary body and choroid; which is a vascular coat of the eye) and adjacent structures (including the sclera, cornea, vitreous humor, retina and the optic nerve head). Because the disease involves recurrent intra ocular complications that are not responsive to therapy. Uveitis can occur either as a co-manifestation of various autoimmune disorders and infections or as a side effect of medications and toxins. Sometimes it may also arise as a purely idiopathic inflammation.

The prevalence of uveitis is estimated at 38 cases per 100,000 people; so it meets the criteria for classification as a rare disease. It is particularly prevalent in younger people, the mean age of uveitis patients at the onset of the disease is less than 40 years of age. Although it is rare uveitis disease, uveitis is the fourth most common cause of blindness among the working age population in the developed world and its economic and social impact has not yet been evaluated.

India presents unique problems because of varying socioeconomic, demographic and morbidity patterns. The prevalence and severity of disease in economically deprived population vary from those rest of the world because of lack of good primary health care, poor affordability and poor compliance. Also India has one of the most highly privatized health care systems in the world with nearby 75% of Indian doctors based in cities whereas about 70% of patients in our country are village based and hence rural Indians lack access to basic health facilities. It is also a great challenge indeed to manage rural and socioeconomic population in which infectious uveitis is much more common than the upper class urban patients.

Uveitis has various clinical patterns and characteristics influenced by multiple factors like genetic, geographic and environment factors and diagnostic criteria. Various epidemiological studies performed from different regions and ethnic population have reported the changing patterns of this intra ocular inflammatory disease. Knowledge and studies on the different types, aetiology epidemiology and clinical characteristics of uveitis in various population is of importance in order to aid the clinician for an appropriate investigation, differential diagnosis and treatment.

Kerala, Gods own country has a unique geographical position and ethnic diversity; therefore the causes, characteristics epidemiology and course of uveitis in Keralite population may differ from other populations and these patterns may also change over years. This project aims to investigate the clinical significance of uveitis in patients presenting to Regional Institute of Ophthalmology, a tertiary eye care centre in Thiruvananthapuram,

OBJECTIVES
AIM: -
To identify the clinical profile of uveitis in patients attending Regional Institute of Ophthalmology, a tertiary eye care centre in Thiruvananthapuram

REVIEW OF LITERATURE
HISTORICAL BACKGROUND
Uveitis is a relatively common eye disease and one of the most important causes for visual impairment throughout the world. The causes of uveitis are numerous, including infection, trauma, non-infectious systemic or ocular disease, and masquerade syndromes.

Uveitis is potentially sight threatening disease. Uveitis affect approximately 1 in 4500 people and in most common between the ages 20-60 with men and women affected equally. In western countries, anterior uveitis accounts for between 50% and 90% uveitis cases. In Asian countries the proportion is between 28% and 50%. Uveitis is estimated to be responsible for approximately 10% to 20% of blindness.

A few reviews of literature of articles presented on the clinical profile of uveitis are as follows
1. A study of clinical profile and factors associated with uveitis at tertiary health care centre; Vijay Kumar Srivastava, Garima Yadav (Associate professors of Rajarajeshwari Medical College, Bangalore, Karnataka, INDIA)

Uveitis is a relatively common eye disease and one of the most throughout the world. This was a cross sectional study at the ophthalmology department of centre in the Patients of Uveitis. All the Patients during the year 2014 with the diagnosis of Uveitis were included into the study. Ophthalmic examinations and necessary etiology also necessary demographic and risk factor history was taken. In the study duration there were 138 patients enrolled into the study. Majority of the patients were in the age group of 30-40, i.e.26.81% followed by 40-50- 20.28%; in 20-30 -19.56%; 10-20 17.39% and in >50 were12.31%, and in<10 were3.62%. Majority of the patients were Females i.e. 56.52% and Males were 43.47%. Most common type of anterior uveitis is 59.42% (its etiology were Idiopathic iridocyclitis-16.67%; Glaucomatocyclitic crisis 13.6%; traumatic iridocyclytis 7.97% etc.) followed by Posterior Uveitis having etiology of Toxoplasmosis i.e. 2.17%, Associated with JRH -2.71%, etc. Last was intermediate Uveitis with etiology of Idiopathic in 1.44% followed and TB in 1.44%.etc. It can be concluded that in Uveitis most common affected age was young age and common in females. Among types Anterior uveitis was most common followed by posterior uveitis and intermediate uveitis was least common. The risk factors associated in our study were H/o Diabetes, Smoking, immunocompromised Disease, Cataract, Ankylosing Spondylitis, Psoriasis, TB etc.

2. Clinical profile and patterns of uveitis in tertiary care centre; Raji Kurumkattil MS, DNB, Sanjay Kumar Dhar MS, DNB, Vijay Kumar Sharma MS, DNB, Hemant Singh Trehan, MS.

They conducted an institution based retrospective study on 141 uveitic patients treated on their centre between April 2014-April 2016 and analysed the pattern of uveitis. A complete ophthalmologic examination was done in all patients. Relevant serological and radiological investigations were carried out based on clinical features to reach definite diagnosis. Evaluations by concerned specialist were done as and when indicated. The main outcome measured included pattern of uveitis according to anatomical classification and etiology. Most patients were treated on outpatient basis. Classification of uveitis was done based on IUSG classification. The final etiological diagnosis was done based on clinical features, lab investigations, and systemic evaluation. Male to female ratio was 3:1, mean age was 34.91. Anterior uveitis is the commonest type which constituted 80 cases(56.74%) followed by retinal vasculitis(19.15%), posterior uveitis 14(9.93%) pan uveitis 11(7.8%), pars planitis 6(4.25%) and scleritis 2(2..13%). Specific diagnosis could be made in 33(37.5%) cases of anterior uveitis. Rest was idiopathic. Among 27 cases of vasculitis 4 were positive of tuberculosis and 1 patient was found to have sarcoidosis. Out of 141cases, 24(17.73%) had specific ocular diseases and 36 cases (24.82%) definite systemic association could be identified. More male

predominance is seen in their study, may be due to the clientele being the serving soldiers in the productive age group.

ANATOMY OF UVEAL TRACT
The uveal tract is the pigmented vascular middle layer of the eye lying between the corneosclera and the neuro epithelium. It consist of three main parts- the iris anteriorly, the ciliary body in the middle and the choroid posteriorly
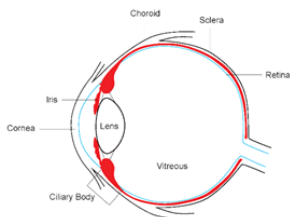
THE IRIS
Iris is the anterior most part of the uveal tract. It is a thin circular disc consists of about 4mm diameter called pupil in its centre. At periphery, the iris is attached to the middle of anterior surface of the ciliary body. The iris consist of 4 layers from anterior to posterior are,
1. Anterior limiting layer
2. Iris stroma
3. Anterior epithelial layer
4. Posterior pigmented epithelial layer

THE CILIARY BODY
It is forward continuation of choroid at orasereta. In cut-section it is triangular in shape. The anterior side of the triangle forms the part of the angle of anterior and posterior chambers. In its middle the iris is attached. The outer side of the triangle lies against the sclera with a superachoroidal space in between. The inner side of the triangle is divided into two parts. The anterior part having finger- like clearly processes is called pars plicata and the posterior smooth part is called pars plana.

Ciliary body consist of following 5 layers,
• Supraciliary lamina
• Stroma of the ciliary body
• Layer of pigmented epithelium
• Layer of non-pigmented
• Internal limiting membrane.

THE CHOROID
It is the posterior most part of the vascular coat of the eye ball. It is extends from the optic disc to orasereta. Its inner surface is smooth, brown and lies in contact with pigment epithelium of the retina. The outer surface is rough and lies in contact with the sclera.

Choroid consist of following three layers,
1. Suprachoroidal lamina
2. Stroma of the choroid
3. Basal lamina

BLOOD SUPPLY OF THE UVEAL TRACT
The uveal tract is supplied by three sets of arteries,
1. Short posterior ciliary arteries
2. Long posterior ciliary arteries
3. Anterior ciliary arteries
4. **Venous drainage.** A series of small veins with drain blood from the iris, ciliary body and choroid join to form the vortex veins.
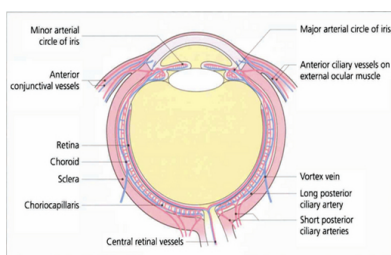
PHYSIOLOGY OF UVEAL TRACT
The uveal tissue performs the following physiological functions,
1) It is the source of blood flow to the ocular tissues.

2) It is the site of aqueous humour production and maintenance of intra ocular pressure. The ciliary processes are the site of aqueous production. Aqueous humour production is the primarily derived from the plasma within capillary network of the ciliary processes.
3) It constitute the blood aqueous barrier. Blood aqueous barrier is formed by the tight junctions between the cells of inner pigmented epithelium of the ciliary body and the non-fenestrated endothelium of the iris.
4) Muscular of the ciliary body play role in the process of accommodation.
5) Uveal tissue play a role in the detoxification and anti-oxidation of the anterior segment.
6) Eicosanoids are synthesised in the iris and ciliary body after trauma or inflammation.

CLASSIFICATION OF UVEITIS
Inflammatory process tends to the uvea as a whole instead of being limited to a single part. Iritis never occurs without some cyclitis nor cyclitis without some iritis and hence these terms are used according to which tissue appears more affected more effected clinically.

The international uveitis study group (IUSG) has designed the classification of uveitis as follows;
1. Based on anatomical classification (location)
• **Anterior uveitis**
Anterior uveitis is the inflammation of the uveal tissue from iris up to pars plicata of ciliary body. It can have a range of presentations from quiet white eye with low grade inflammatory reaction apparent only on close examination to a painful red eye with moderate or severe inflammation. Inflammation confined to iris and anterior chamber is iritis. If it's spill over retrolental space in which iris and pars plicata part of ciliary body are equally involved, it is called iridocyclitis. Cyclitis is the condition in which pars plicata part of ciliary body is predominantly affected.

• **Intermediate uveitis**
It includes inflammation of the pars plana and peripheral part of the retina and underlying choroid. It is also called pars palnitis. Inflammation of the middle portion of the eye manifests primarily as floaters affecting the vision, the eye frequently appears quiet externally.

• **Posterior uveitis**
Posterior uveitis may present either with a quiet appearing eye or with inflammation spilling over the anterior segment inflammation may affect the retina alone (retinitis), the choroid alone (retinochoroiditis and chorioretinitis). The inflammation can be focal, diffuse or multifocal. Visual symptoms of posterior uveitis can be caused by involvement of the macula or a reduction in peripheral vision. When inflammatory process involving the retina spill over into the vitreous floaters are a common symptom.

Infectious involvement is more common in the retina and choroid than in the anterior segment of the eye. Infectious may be viral, bacterial, protozoal or fungal and have various presentations.

• **Pan uveitis**
Uveitis can affect the entire inner eye. Some patients follow a stormy course, while others have a quiet appearing eye that nonetheless experiences a slowly debilitating course.

2. Based on clinical classification (course)
• **Acute uveitis**
It has got a sudden symptomatic onset and the disease lasts for about six weeks to 3 months.

• **Chronic uveitis**
It frequently has an insidious and asymptomatic onset. It persists longer than 3 months to years and is usually diagnosed when it causes defective vision.

• **Recurrent uveitis**
This is characterised by repeated episodes with inactive period's ≥3 weeks of treatment.

3. Based on pathological classification
• **Granulomatous**
• **Non granulomatous**

4. Based on etiological classification
- **Infective uveitis**

Viral- HIV, Herpes Zoster, Herpes Simplex virus, measles, mumps virus Bacterial –mycobacterium tuberculosis, mycobacterium leprae, leptospira, streptococcus.

Fungal – aspergillus, candida albicans
Protozoal- toxoplasma gondii, amoeba
Helminthic- toxocara, ascaris

- **Non infective uveitis**

Systemic – related to collagen vascular diseases, rheumatologic diseases and others
Neoplastic –retinoblastoma, leukaemia
Idiopathic

CLINICAL CHARACTERISTICS OF UVEITIS
Each patient demonstrate only a portion of possible symptoms and signs of uveitis. After the physician has used the information obtained from the history and physical examination to determine the classification of uveitis, she/he can use several associated factors to further subcategorise, leading in turn to the choice of laboratory studies and therapeutic options.

SYMPTOMS OF UVEITIS
The most common symptoms of uveitis are blurred vision, floaters, pain, photophobia and redness. These symptoms vary with the type of inflammation (acute or chronic) as well as with specific ocular structures involved. Blurred vision may result from refractive error such as myopic shift or hyperopic shift or hyperopic associated with macular oedema, hypotonic, or change in lens position. Other possible causes of blurred vision include opacities in the visual axis from inflammatory cells, fibrin or protein in the anterior chamber, keratic precipitates (Kps); secondary cataract, vitreous debris, macular oedema and retinal atrophy.

The pain of uveitis usually results from acute onset of inflammation in the region of the iris, as in acute iritis, or from secondary glaucoma. The pain associated with ciliary spasm in iritis may be a referred pain that seems to radiate over a larger area served by fifth cranial nerve (trigeminal nerve). Epiphora and photophobia are usually present when inflammation involves the iris, cornea, or iris-ciliary body. Occasionally, uveitis is discovered on a routine ophthalmic examination in an asymptomatic patient.

SIGNS OF UVEITIS
An inflammatory response to infectious, traumatic, neoplastic or autoimmune processes produces the signs of uveitis. Chemical mediators of the acute stage of inflammation include serotonin, complement and plasmin. Leukotriene, kinins and prostaglandins modify the second phase of acute response through antagonism of vasoconstrictors. Activated compliment is a leukotactic agent. Polymorphonuclear leukocytes, eosinophil and mast cells may all contribute to signs of inflammation. However, the leucocytes is, by far mediators result in vascular dilation (ciliary flush), increased vascular permeability and chemo taxis of inflammatory cells into the eye.

ANTERIOR SEGMENT
Signs of uveitis in the anterior portion of the eye include,
- Kps
- Cells
- Flare
- Fibrin
- Hypopyon
- Pigment dispersion
- Pupillary miosis
- Iris nodules
- Synechiae, both anterior and posterior
- Band keratopathy

Perilimbal vascular engorement or diffuse injection of the conjunctiva, episclera or both is typical with acute anterior uveitis. With increased capillary permeability, the anterior chamber reaction can be described as

- Serous (aqueous flare by protein influx)
- Purulent (leucocytes and necrotic debris causing hypopyon)
- Fibrinous (fibrinous exudates)

- Sanguinoid(inflammatory cells with erythrocytes)

KPs are collections of inflammatory cells on the corneal endothelium. When newly formed, they tend to be white and smoothly rounded, but then they become crenated, pigmented or glassy. Large yellowish KPs are mutton fat KPs, these are usually associated with granulomatous types of inflammation.

Iris involvement may manifest either anterior or posterior synechiae, iris nodules (Koeppe nodules at the pupillary border and Busacca nodules within the iris stroma, Berlin nodules in the angle), iris granulomas, heterochromia or stromal atrophy.

With uveitis involvement of the ciliary body and trabecular meshwork, IOP often is low secondary to decreased aqueous production or increased alternative outflow, but IOP may increase precipitously if the meshwork becomes clogged by inflammatory cells or debris or if the trabecular meshwork itself is the site of inflammation (trabeculitis). Pupillary block with iris bombe and secondary angle closure may also lead to an acute rise in IOP.

INTERMEDIATE SEGMENT
Signs in the intermediate anatomical area of eye include,
- Vitreal inflammatory cells
- Snowball opacities, which are common with sarcoidosis or intermediate uveitis
- Exudates over the pars palna (snow baking)
- Vitreal strands
- Chronic uveitis may be associated with cyclic membrane formation with secondary ciliary body detachment and hypotony.
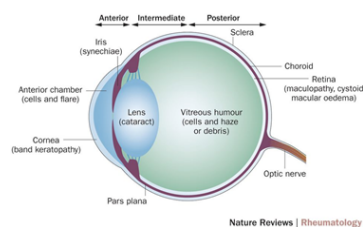
POSTERIOR SEGMENT
Signs in the posterior segment of the eye includes,
- Retinal or choroidal inflammatory infiltrates
- Inflammatory sheathing of arteries or veins
- Perivascular inflammatory cuffing
- Retinal pigment epithelial hypertrophy or atrophy
- or swelling of the retina, choroid or optic nerve head
- Pre or sub retinal fibrosis
- Exudative, tractional or rhegmatogenous retinal detachment
- Retinal or choroidal neovascularisation

Retinal and choroidal signs may be unifocal, multifocal or diffuse. The uveitis can be diffuse throughout the eye (pan uveitis) or appear dispersed with spill over from one are to another, as with toxopla smosis primarily involving the retina but showing anterior chamber inflammation as well.

IN SUMMARY

Nature Reviews | Rheumatology

SIGNS OF UVEITIS
- **Eye lids and skin** - vitiligo, nodules
- **Conjunctiva** - perilimbal or diffuse injection, nodules
- **Corneal endothelium** - keratic precipitates, fibrin, pigment
- **Anterior/posterior chamber** – inflammatory cells, flare, pigment
- **Iris** - nodules, posterior synechiae, atrophy, hetrochromia
- **Angle** - peripheral anterior synechiae, nodules, vascularisation
- **Intraocular pressure** - hypotony secondary glaucoma
- **Vitreous** - inflammatory cells, traction bands
- **Pars plana** - snow banking
- **Retina** - inflammatory cells, inflammatory cuffing of blood vessels, oedema, cystoidmaculaoaedema, RPE: hypertrophy /clumping /loss, epiretinal membranes
- **Choroid** - inflammatory infiltrate, atrophy, neovascularisation
- **Optic nerve** – oedema, neovascularization

SYMPTOMS OF UVEITIS
- Redness
- Pain

- Photophobia
- Epiphora
- Visual disturbances (diffuse blur, myopic or hyperopic shift, cataract, inflammatory cells)
- Scotoma(central or peripheral)

MATERIALS AND METHODS
STUDY DESIGN
This study was aimed at identifying the clinical profile of uveitis in patients attending Regional Institute of Ophthalmology, Thiruvananthapuram.

STUDY PERIOD
5 months (January 2019-May 2019)

SAMPLE SIZE
30 patients showing positive signs of uveitis were included in this study.

INCLUSION CRITERIA
All the patients consulted in the uvea clinic of Regional Institute of Ophthalmology, who were willing for this study.

STUDY PROCEDURE
Patient data were collected, which includes patient name, age, sex, occupation, economic status, history of present illness, past ocular history, medical history of systemic diseases, family history, and the history of systemic illness.

Ocular examination started with the examination of best corrected visual acuity with snellens visual acuity chart. Slit lamp bio microscopic examination of the anterior segment was done to find out any active inflammation. Activity of inflammation was detected by the presence of cells and flares in the anterior chamber, nodules and synechiae of iris. Posterior segment examination of both eyes were done with indirect ophthalmoscopy to find out any active signs of posterior uveitis or scars in retina.

SPECIAL LABORATORY INVESTIGATIONS WERE DONE IN ALL INCLUDED CASES
(1) Blood examination- for total luecocyte count, differential count, erythrocyte sedimentation rate, Radom blood sugar, blood urea and cholesterol examination
(2) Urine examination – to detect the presence of albumin sugar deposits,
(3) mantoux test were done inall cases. Patient showing positive Mantoux test were sent to district TB centres for X Ray chest and sputum examination for acid fast bacillae.
(4) Serological examination was also sent for detection specific IgG and IgM antibodies for toxoplasma gondii
(5) Patients were subjected to rheumatological examination and also they were sent to a test for rheumatoid factors.
(6) Patients presented with the history of systemic illness were referred to the corresponding department of medical college for detailed evaluation.

OBSERVATIONS
TABLE 1 SEX DISTRIBUTION

SEX	NO OF CASES	PERCENTAGE
MALES	11	36.67
FEMALES	19	63.33
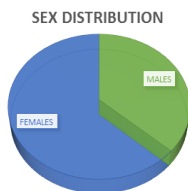
SEX DISTRIBUTION

TABLE 2 AGE DISTRIBUTION

AGE DISTRIBUTION	NO OF CASES	PERCENTAGE
0-20	4	13.33
21-30	3	10
31-40	3	10
41-50	9	30
51-60	7	23.33
61-70	7	23.33

AGE DISTRIBUTION
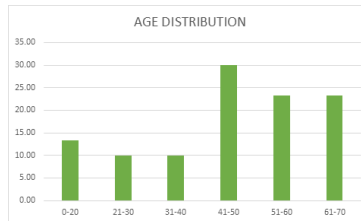
TABLE 3 EYE INVOLVED

EYE INVOLVED	NO: OF CASES	% OF CASES
UNILATERAL	26	86.6%
BILATERAL	4	13.3%

eye involved
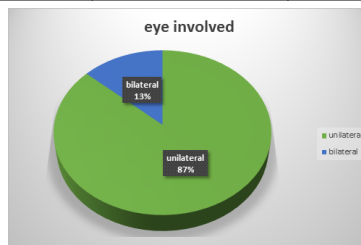
TABLE 4 PRESENTING COMPLAINTS

SYMPTOMS	NO: OF CASES	PERCENTAGE OF CASES
DEFECTIVE VISION	25	83.33%
PAIN	23	76.66%
REDNESS	24	80%
PHOTOPHOBIA	18	60%
FLOATERS	11	36.66%

SYMPTOMS
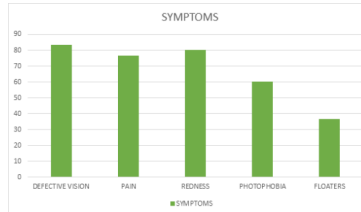
TABLE 5 POSSITIVE LAB FINDINGS

INVESTIGATIONS	NO OF CASES	PERCENTAGE
MANTOUX POSSITIVE	4	13.33
TOXOPLASMA IgG POSSITIVE	11	36.67
TOXOPLASMA IgM POSSITIVE	2	6.67
RA POSSITIVE	6	20.00

PERCENTAGE
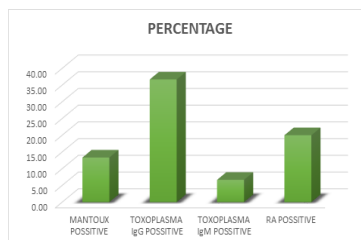
TABLE 6 CLINICAL TYPE OF UVEITIS

TYPE OF UVEITIS	NO; OF CASES	% OF CASES
ANTERIOR	8	26.67%
INTERMEDIATE	7	23.33%
POSTERIOR	4	13.33%
PANUVEITIS	7	23.33%
POST OPERATIVE	1	3.33%
TRAUMATIC	1	3.33%
SCLEROKERATO UVEITIS	2	6.66%
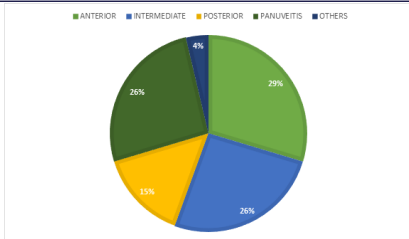
TABLE 7 VISUAL ACUITY

VISUAL ACUITY	NO: OF PATIENTS	% OF CASES
BETWEEN 6/6-6/12	3	10%
BETWEEN 6/12-6/36	11	36.67%
BELOW 6/36	15	50%
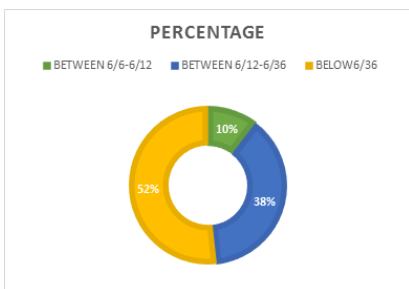
TABLE 8 OCULAR EXAMINATION

EXAMINATION OF	NO OF CASES	PERCENTAGE
ANTERIOR SEGMENT(ACTIVE INFLAMMATION)	26	86.67
POSTERIOR SEMENT(ACTIVE INFLAMATION)	18	60
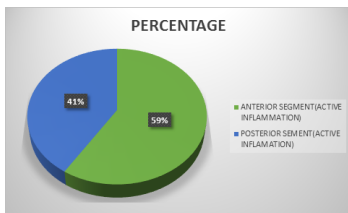
TABLE 9 OCCUPATION

OCCUPATION	NO OF CASES	PERCENTAGE
MANUAL LABOUR	14	46.67
HOUSE WIFE	9	30.00
OTHERS	7	23.33
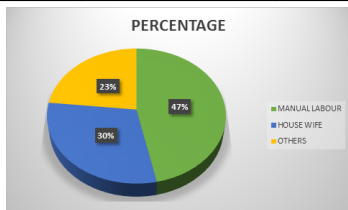
TABLE 10 SOCIAL STATUS

ECONOMIC STATUS	NO OF CASES	PERCENTAGE
LOW INCOME	11	36.67
MIDDLE INCOME	17	56.67
HIGH INCOME	2	6.67
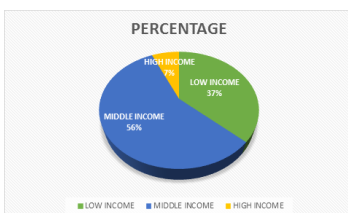
DISCUSSIONS

The study group consists of 30 patients with uveitis who attended the Regional Institute of Ophthalmology, Thiruvananthapuram, during the period from January 2019 to May 2019. Out of 30 cases, there were 19 females (63%) and 11 males (37%). There was a female dominance. The male to female ratio is 1:1.7. Various studies from the western countries and other parts of India shows male dominance.

The age distribution in our project was such that 30% of the patients were between 41-50 years, 23% of the patients were between 51-60 years and 13% of patients were between 61-70 years. The majority of the patients were on the age group 41-50 years.

Anterior uveitis constitute 8 cases which is about 26.7% of total cases, which is comparatively more in number. This is compatible with other studies. The striking result for anterior uveitis in our project is due to increased history of recent infections and history of rheumatoid arthritis. Panuveitis (23.3%) and intermediate (23.3%) uveitis were the second most frequent types of uveitis which is not surprising with the high incidence of toxoplasma IgG positivity and increased history of contact with pets. Intermediate uveitis was about 4 cases (13.3%) out of 30 cases. The other types of uveitis are traumatic uveitis (3.33%), post-operative (3.33%) and sclera-kerato uveitis (6.66%).

Toxoplasma immunological G is found to be positive in 36.7% of cases in our project. This helps in identifying the increased cases of pan and posterior uveitis in this rural region. This was supported by most of studies from south India. RA factor is found positive in 20% of cases, mantoux positive is found in 13.33% of case.

In our project, while considering the economic status, 57% of the patients were belonging to the middle class level, 37 % belonging to the lower class and the remaining 7% belongs to the upper class.
Increased knowledge on uveitis epidemiology over the past decade and improved diagnostic techniques have helped to better classify certain forms of uveitis. Thus the frequency of idiopathic cases has significantly decreased. Since uveitic entities follow different pattern in different regions and are influenced by variety of factors and epidemiological studies can help improve their diagnosis and treatment. Adoption of a universal classification systems and population based studies in all countries may provide more reliable data for comparisons
among different areas.

CONCLUSION

This study reflects the causes and distribution of uveitis at our centre. Uveitis is a vision threatening ocular disorder with numerous etiologies. It should be mandatory that a proper uveitis registry should be maintained and because in the difficulty in making precise diagnosis and complicated management, it is imperative that affected patients may be referred and closely monitored by concerned specialist to prevent irreparable ocular damage.

These studies are extremely difficult to organize as it is not easy to make valid comparisons between uveitic statistics from different countries. In each community, pattern of uveitis is dependent upon multifocal aspects of our life and the demographic and ethnic factors prevalent during that period. These determine a definite geographical distribution of the pattern of the pattern of uveitis.

Following conclusions were drawn from our project;
1) Females are more commonly affected (63%) than males (37%)
2) Coincidence of uveitis is more in the age group between 41-50 years (30%) and between 51-60years (23%)
3) Based on the study 57% of patients were belonged to middle class and 37% with lower class with poor living status.
4) Unilateral cases (87%) were presented more than bilateral (13%)
5) Defective vision (83%) is the most presenting symptom experienced by the patients followed by redness (80%), pain (77%), photophobia (60%) and floaters (37%)
6) About 50% of cases were presented with visual acuity below 6/30
7) Anterior uveitis is the most common form of uveitis and represents 27% of patients followed by pan uveitis (23%) and intermediate uveitis (23%)
8) 20% of patients were associated with rheumatological problems
9) Toxoplasma immunoglobulin G remains positive for 37% of cases followed by mantoux positive (13.3%) and rheumatoid factor positivity (20%)

10) Since this study include more females the most, the occupation statistics were housewife's (46.7%), manual labours (30%) and others (23%)

11) Being poor hygiene and poor living status, most of the patients referred from the rural region having the history of bathing in ponds and contacts with pets.

12) There is limitation in our project that majority of the subjects with uveitis referred for systemic evaluation. Therefore it is not possible from our data to assess the possible aetiologies of uveitis seen.

There is limitation of making valid comparisons between uveitis statistics of different areas due to differential diagnostic criteria and concept of etiopathologies. It is well known that certain forms of uveitis have definite geographical distribution. More complicated and severe forms of panuvetis and posterior uveitis may be over presented at referral centres which makes studies difficult.

Our project is based on the study institute which is a tertiary referral centre, more patients with posterior and pan uveitis could have been referred and hence the total incidence quoted may not truly reflect the annual incidence in the population. Majority of the patients were referred from various regions, a large segment from the rural areas. Despite of these limitations, our results still convey to a large extent, the general uveitis pattern in India. In conclusion, frequency causes and clinical characteristics of uveitis are influenced by several factors including socio-economic, geographical and genetic factors. Because of the ongoing changes in uveitis epidemiology, it is important to be aware of the incidence of uveitis in our geographical area to best serve the needs of the population.

SL NO.	Name	AGE & SEX	Symptoms					Eye Involved		Associated Systemic Illness	Ocular Examination				Possitive Lab Findings	Clinical Type Of Uveitis
			DV	Pain	Redness	Photo Phobia	Floaters	U/L	B/L		BCVA		Anterior Segment (active Inflammation)	Posterior Segment (Active Inflammation)		
											RE	LE				
1	Girijamma	59/F	✓	✓	✓	✓		✓		DM	6/12	CFCF	✓			Anterior Uveitis
2	Roshan S A	3/C	✓	✓	✓	✓		✓			6/6	6/9	✓		ANA +VE	Anterior Uveitis
3	Lekhamol	34/F	✓	✓	✓		✓	✓			6/9	6/18P	✓	✓		Intermediate Uveitis
4	Santhosh Kumar	50/M	✓	✓	✓	✓	✓	✓			6/6	CF3 M	✓	✓		Panuveitis
5	Omana	70/F	✓	✓		✓		✓			6/6	CF1 M		✓		Intermediate Uveitis
6	Lathakumari	40/F	✓	✓	✓	✓		✓			6/12	6/6	✓	✓		Intermediate Uveitis
7	Sulthana Shihab	15/F	✓	✓	✓	✓		✓			6/24	6/6	✓	✓	IgG +VE	Intermediate Uveitis
8	Jaison Babu	48/M	✓	✓	✓	✓		✓		DM,HTN,CAD, DLP	NO PL	HM +VE	✓			Anterior Uveitis
9	Remani	57/F	✓				✓		✓		CF1/2M	CF1 M	✓		RA +VE	Anterior Uveitis
10	Nandhan	4/M			✓			✓					✓	✓	IgG +VE ,IgM+ VE	Panuveitis
11	Megha	47/F	✓	✓	✓	✓	✓	✓		SARCOIDOSIS	6/9P	6/9	✓	✓		Panuveitis
12	Pushkala	49/F	✓				✓	✓		RA	6/12	6/6		✓		Posterior Uveitis
13	Anjith	22/M	✓	✓	✓			✓			6/6	HM +VE	✓			Traumatic Uveitis
14	Amala	50/F	✓	✓	✓	✓		✓		DM	6/24	6/6	✓			Intermediate Uveitis
15	Manjula	40/F	✓	✓	✓	✓			RA		6/24	6/6	✓		RA +VE	Anterior Uveitis

No	Name	Age/Sex								Systemic					Lab	Diagnosis
16	Tulasi	55/M	✓	✓	✓	✓	✓	✓			6/60	6/6	✓		IgG +VE	Anterior Uveitis
17	Shaji	42/M	✓	✓	✓			✓			6/9	6/36	✓	✓	IgG +VE, IgM +VE,	Panuveitis
18	Sumathy	60/F	✓	✓	✓	✓	✓	✓	✓	DM ,HTN	6/24	PL +VE	✓	✓		Sclero Kerato Uveitis
19	Radhamani	47/F	✓	✓	✓	✓	✓	✓		TB,RA	6/24	6/6	✓		ANA+ VE , MAN TOUX	Anterior Uveitis
20	Kevin	18/M	✓	✓	✓	✓	✓				6/6	6/60		✓		Posterior Uveitis
21	Arun Rajan	23/M	✓	✓	✓		✓				6/6	6/18		✓	IgG +VE	Posterior Uveitis
22	Padmini	62/F		✓	✓		✓		✓	HTN	6/24	6/24	✓	✓		Panuveitis
23	Gopala Krishnan	58/M	✓	✓	✓	✓	✓	✓		CAD, RA,	6/36	6/9	✓	✓	MAN TOUX ,IgG +VE	Panuveitis
24	MINI	44/F	✓	✓	✓			✓			6/9	6/36	✓	✓	IgG +VE, IgM +VE,	PANUVEITIS
25	Sureshbabu	50/M	✓	✓	✓			✓			6/6	CF1 M	✓			Infective Kerato Uveitis
26	Arifa Beevi	62/F	✓	✓	✓	✓	✓	✓		BA	6/12	CFCF		✓		Intermediate Uveitis
27	Subairath	51/F	✓								6/18	6/60		✓	IgG +VE	Posterior Uveitis
28	Ambika	69/F		✓	✓				✓		6/24	6/36	✓		IgG +VE	Anterior Uveitis
29	Nalini	52/F	✓	✓	✓				✓	RA,CAD	6/60	6/36	✓		RA +VE	Anterior Uveitis
30	Reshmi	21/F	✓	✓	✓	✓	✓	✓			6/6	6/60	✓	✓	IgG+ VE	Panuveitis

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