**Incidence of uveitis in local population of Lahore**

**Abstract :**

Uveitis tends to afflict younger age groups than other eye disorders like cataract and glaucoma, which typically affect the elderly.The frequency and prevalence of infectious ocular inflammation may vary greatly depending on the etiological agent and geographical location. Our study found that the most frequent causes of infectious uveitis, which can account for up to 20% of all cases of uveitis in the developed world, are toxoplasmosis and herpetic infection. We found out that uveitis was more prevalent in the female population and that too in the younger age group with anterior uveitis being more common.

**Keywords:**Uveitis, inflammation, herpetic infection, genetics

**Introduction:**

Uveitis is an inflammation of the iris, ciliary body, and choroid, which make up the central layer of the eye. Other nearby tissues like the retina, optic nerve, and vitreous humour may also be affected [1]. Globally, this disease poses a hazard to vision. In the United States, it may cause up to 10% of legal blindness, while in underdeveloped nations, it may cause up to 25% [2, 3]. Uveitis tends to afflict younger age groups than other eye disorders like cataract and glaucoma, which typically affect the elderly.

About 30,000 new cases of legal blindness are caused by uveitis each year in the United States alone, making it a major contributor to visual morbidity. [4,5] Since uveitis includes a wide range of diverse conditions, it is unclear how factors that differ locally, such as age, sex, ethnicity, environmental exposures, and genetics, affect ocular inflammation. [6,7]

Uveitis is thought to affect more than 2 million people worldwide, and the number is rising [1, 3]. According to its aetiology, uveitis can be separated into immune-mediated and infectious types. The former is typically more prevalent in developing nations [4, 5], whilst the latter predominates in industrialised nations [6–8].

**Materials and methods:**

**Study design**:

Observational study

**Study duration**:

1st april 2022 to 30th April 2023

**Place of study**:

Lahore general hospital,Lahore

**Sample Size:**

Sample size of 44 is estimated at 95% confidence level and taking expected Prevalence rate of uveitis as 92%

**Comment [U1]:** Is better to write in 3er person

**Comment [U2]:** Insert %: 30 were females (68.18%) and 14 were males (31.81%) and include conclusions

**Comment [U3]:** Justified the paragraphs

**Comment [U4]:** In keywords include uveal tract, ophthalmology, visual health in Decs descriptors: https://decs.bvsalud.org/en/ths/resource/?id=15007&filter=ths_exact_term&q=uveitis#Tree_Structures

**Comment [U5]:** I suggest to unify type of letter, spaces, and grammar

**Comment [U6]:** include the country

(Martinet et al., 2012) with 8% Margin of Error

Using the following Formula:

n = Z 2 1-α/2 .p.q/e 2

Where:

Z 1-α/2 = Confidence level = 95%

Z 1-α/2 = = 1.96

p= Prevalence rate of ……. = 92%

e = Margin of Error = 8%

n = 44 Patients

**Data Collection:**

Age, sex, age at onset, age at presentation, clinical diagnosis using the SUN classification system [3], laterality, course of the disease, grade of inflammation, best-corrected visual acuity (BCVA), type of uveitis, etiologic diagnosis, and complications were all collected from the patient's medical records and through a circulating performa.

From two uveitis reference textbooks, a final diagnostic list was created using the traditional criteria for ocular inflammatory disorders [18, 19]. To ensure the accuracy of the data, a single uveitis specialist evaluated each patient and retrieved their medical records.

A complete ophthalmologic examination was performed on each patient, which included tonometry, indirect ophthalmoscopy, slit-lamp biomicroscopy, and a BCVA evaluation. Purified protein derivate (PPD-Mantoux), fluorescent treponemal antibody-absorption (FTA-ABS), interferon-gamma release assays (IGRAs), chest radiography, venereal disease research laboratory (VDRL), fluorescent treponemal antibody-absorption (FTA-ABS), C-reactive protein, urine analysis, and venereal disease research laboratory were all similarly required of all patients.

Further eye exams, such as fluorescein angiography, optical coherence tomography, and visual field tests, were performed when needed. When it was necessary to make a diagnosis, additional tests were carried out, including computed tomography, magnetic resonance imaging, HLA-B27/B51/DR4/A29 typing, serum angiotensin-converting enzyme Toxoplasma, Toxocara, Herpes simplex, Herpes zoster, and Cytomegalovirus antibodies, Borrelia antibodies, and enzyme-linked immunosorbent assay for HIV. Clinical criteria required the presence of active creamy-white focal retinal lesions, hyperpigmentedretinochoroidal scars in either eye, and positive anti-Toxoplasma IgG and/or IgM levels to diagnose ocular toxoplasmosis. Intraocular fluids PCR was required to confirm unusual occurrences [20,21].

**Comment [U7]:** The names of microorganism must be in cursive: *Toxocara, Toxoplasma,,,*

**Results:**

Out of 44 patients there were 30 were females (68.18%) and 14 were males (31.81%)

**Comment [U8]:** Include stathistics about the relationship of variables as: age and uveitis, OCT clinical pearls, Toxoplasma, ToxocaraBorrelia

Patients selected were between 20 and 60 years of age with 30 years as mean age group. Out of these 44 patients 31(71.4%) patients were below 30 years of age and 13 (29.5%) were above 30 years of age.

Out of these 44 patients, 18 (40.9%) had anterior uveitis out of these 18 , 12 (27.2%) were females and 6(13.6%) were males , 12(27.2%) had intermediate uveitis out of which 8 (18.1%) were female and 4 (9%) were male , 14 (31.8%) out of 44 patients had posterior uveitis out of which 10 (22.7%) were and 4 (9%) were male

**Comment [U9]:** Include a Table of Sociodemographic aspects

**Comment [U10]:** Include if you have results of the types of uveitis found

**Discussion:**

In order to conduct a thorough, long-term epidemiologic investigation of infectious uveitis and scleritis in the United States, a sizable national medical claims database was analysed. Our findings offer fresh information on the incidence and prevalence of a very uncommon ailment in the real world, which may be used to inform patient education and population health policy planning.

**Comment [U11]:** Delimitate all United States or samples for one City (44 are the total ??)

Overall, we found that the incidence of any type of uveitis was 124.3 and 316.4 occurrences per 100,000 individuals per year, respectively. Infectious uveitis and scleritis were shown to have an overall mean annual incidence and prevalence of 19.1 and 60.6 per 100,000 people, respectively, in a population based in the United States, or around 14% of cases in our sample. Our main attention was on infectious uveitis.[9,10,11]

The frequency and prevalence of infectious ocular inflammation may vary greatly depending on the etiological agent and geographical location. Our study found that the most frequent causes of infectious uveitis, which can account for up to 20% of all cases of uveitis in the developed world, are toxoplasmosis and herpetic infection [5]. In the developing world, infectious agents may be responsible for up to 30 to 50 percent of all uveitis cases; toxoplasmosis, tuberculosis, onchocerchiasis, and cysticercosis are the most common etiologies [12,13,14,15]. These estimates of incidence and prevalence are influenced by the clinical setting, newly developing infectious patterns, more sensitive diagnostic procedures, and novel diseases or disease classifications. In our American investigation, the prevalence of infectious ocular inflammation was only detected in 14% of the individuals with uveitis/scleritis.

**Comment [U12]:** Include a section of Ethical aspects

**Conclusion:**

anterior uveitis affects the anterior parts of the uveal tract including iris and the pars plicata parts of the ciliary body, intermediate uveitis affects mainly the pars plana and posterior uveitis targets the posterior aspects of the uveal tract including the vitreous and the retina.

In our study there were a total of 44 patients divided into groups as male and female and age groups between 20 to 60 with mean age group of 30 and the anatomical division of the disease affecting various anatomical structures of the eye. We found out that uveitis was more prevalent in the female population and that too in the younger age group with anterior uveitis being more common.

References:


1.R. W. Darrell, H. P. Wagener, and L. T. Kurland, "Epidemiology of uveitis. Incidence and prevalence in a small urban community," *Archives of Ophthalmology*, vol. 68, pp. 502–514, 1962.

- View at: Google Scholar

2.R. B. Nussenblatt, "The natural history of uveitis," *International Ophthalmology*, vol. 14, no. 5-6, pp. 303–308, 1990.

- View at: Publisher Site | Google Scholar

3.L. Dandona, R. Dandona, R. K. John, C. A. McCarty, and G. N. Rao, "Population based assessment of uveitis in an urban population in southern India," *British Journal of Ophthalmology*, vol. 84, no. 7, pp. 706–709, 2000.View at: Publisher Site | Google Scholar

4.Oruc S, Kaplan AD, Galen M, Kaplan HJ. Uveitis referral pattern in a midwestuniversityeyecenter. *OculImmunolInflamm*. 2003;11(4): 287–298.

5.Rodriguez A, Calonge M, Pedroza-Seres M, et al. Referral patterns of uveitis in a tertiary eye care center. *Arch Ophthalmol*. 1996;114(5): 593–599.

6.Moorthy RS, Rao PK, Read RW, et al. 2011–2012 Basic and Clinical Science Course, Section 9; Intraocular inflammation and uveitis. San Francisco, CA: American Academy of Ophthalmology; 2011

7.Gritz, DCWong IG, Incidence and prevalence of uveitis in Northern California; the Northern California epidemiology of uveitis study, *Ophthalmology*, 2004;111(3):491–500.https://doi.org/10.1016/j.ophtha.2003.06.014.Google ScholarCrossrefPubMed

8.Krishna U, Ajanaku D, Denniston AK, Gkika T. Uveitis: a sight-threatening disease which can impact all systems. *Postgrad Med J*. 2017;93(1106):766–73. https://doi.org/10.1136/postgradmedj-2017-134891.Google ScholarCrossrefPubMed

9.Foster CS,KothariS, AnesiSD,Vitale AT Chu D,Metzinger JL, The ocular immunology and uveitis foundation preferred practice patterns of uveitis management. *Surv Ophthalmol*.2016;61(1):1–17. .Google ScholarCrossrefPubMed


**Comment [U13]:** Review Vancouver format, not colors

10.RathinamSR, Krishnadas R, Ramakrishnan R, Thulasiraj RD, Tielsch JM, Kat Population-based prevalence of uveitis in Southern India.

11.London NJS, Rathinam SR, Cunningham ET. The epidemiology of uveitis in developing countries. *IntOphthalmolClin*. 2010;50(2):1. https://doi.org/10.1097/iio.0b013e3181d2cc6b.Google ScholarCrossrefPubMed

12.MiserocchiE, Fogliato G, Modorati G, Bandello F. Review on the worldwide epidemiology of uveitis. *Eur J Ophthalmol*. 2013;23(5):705–17. https://doi.org/10.5301/ejo.5000278.Google ScholarCrossrefPubMed

13.Thorne JE, Suhler E, Skup M, Tari S, Macaulay D, Chao J, Prevalence of noninfectious uveitis in the United States: a claims-based analysis. *JAMA Ophthalmol*. 2016;134(11):1237–45. https://doi.org/10.1001/jamaophthalmol.2016.3229.Google ScholarCrossrefPubMed

14.Chen EJ, Bin Ismail MA, Mi H, Ho SL, Lim WK, Teoh SC, Ocular autoimmune systemic inflammatory infectious study (OASIS) – report 1: epidemiology and classification. *OculImmunol Inflamm*. 2018;26(5):732–46. https://doi.org/10.1080/09273948.2016.1249376.Google ScholarCrossrefPubMed

15.Jabs DA, Nussenblatt RB, Rosenbaum JT (2005) Standardization of uveitis nomenclature (SUN) Working Group Standardization of uveitis nomenclature for reporting clinical data. Results of the First International Workshop Am J Ophthalmol 140(509):516. https://doi.org/10.1016/j.ajo.2005.03.057

16.Zierhut M, Pavesio C, Ohno S et al (2016) Intraocular inflammation. Springer, Berlin

17.Foster CS, Vitale AT (2013) Diagnosis and treatment of uveitis. Jaypee Brothers Medical, New Delhi, London

18.Pepose JS, Holland GN, Wilhelmus KR 1996 Toxoplamosis. In: Ocular infection & immunity, 1st ed. Mosby, St. Louis, Missouri

19.de-la Torre A, Valdés-Camacho J, de Mesa CL et al (2019) Coinfections and differential diagnosis in immunocompetent patients with uveitis of infectious origin. BMC Infect Dis 19:91. https://doi.org/10.1186/s12879-018-3613-8

20.Bosch-Driessen LEH, Berendschot TTJM, Ongkosuwito JV, Rothova A (2002) Ocular toxoplasmosis. Ophthalmology 109:869–878. https://doi.org/10.1016/S0161-6420(02)00990-9

21.Pimentel MA, Browne EN, Janardhana PM, Borkar DS, Tham VM, Uchida A, et al. Assessment of the Accuracy of Using ICD-9 Codes to Identify Uveitis, Herpes Zoster Ophthalmicus, Scleritis, and Episcleritis. *JAMA Ophthalmol*. 2016;134(9):1001–6. 10.1001/jamaophthalmol.2016.2166 [PubMed] [CrossRef] [Google Scholar]