



## Clinical characteristics of Iridocorneal endothelial disorder: An observational study

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### Abstract

**Introduction:** Irido-Corneal Endothelial (ICE) condition is an extraordinary clinical substance which incorporates corneal endothelial harm, deterrent of front chamber point, iris decay and polycoria. These proliferative and underlying irregularities are the sign of this infection. Corneal decompensation and glaucoma are the commonest reasons for vision misfortune in patients with ICE condition.

**Materials and Methods:** All patients determined to have ICE condition as referenced in our incorporation measures analyzed between the October 2019-October 2020. A sum of 50 patients were remembered for our review subsequent to precluding prohibition measures and the information was reflectively investigated. Information relating to age, sex, clinical range of infection, laterality, Visual keenness, corneal and iris discoveries, foremost chamber (AC) profundity, gonioscopic discoveries, response in AC, relationship with glaucoma, clinical and careful administration was gathered, number of AGMs utilized, length of follow up gathered.

**Results:** We concentrated on 51 eyes of 50 patients with age scope of 7-65 years with middle age at show was 40.72 years. 28 (56%) were female and 22 (44%) were male. ICE disorder was one-sided in 49 (98%), of which right was engaged with 25 (half) and left was engaged with 24 (48%). Mean IOP of involved eye was  $23.70 \pm 11.7$  mm of Hg. PIA and CS variation of ICE disorder were equivalent in recurrence of 20 (40%). CRS was found as least variation of ICE disorder and was 10 (20%) patients. Out of 51 eyes of study bunch we had 43 (84.3%) eyes were phakic and 7 (13.7%) eyes were pseudophakic. There was no aphakic eye in our review bunch patients.

**Conclusion:** In our review, ICE disorder was one-sided, and moderately aged females were all the more ordinarily impacted. Glaucoma is unequivocally connected with ICE disorder. Careful administration is needed in larger part of the impacted patients. ICE patients might require more than 1 surgery for IOP control. They are usually connected with corneal difficulties which might require entering keratoplasty.

**Keywords:** Cornea, Ophthalmology, ICE, PIA, CRS, pseudophakic

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### I. Introduction

Irido-Corneal Endothelial (ICE) disorder is an extraordinary clinical element which incorporates corneal endothelial harm, obstacle of front chamber point, iris decay and polycoria.[1] These proliferative and underlying irregularities are the sign of this illness. Corneal decompensation and glaucoma are the commonest reasons for vision misfortune in patients with ICE syndrome[1]. The aetiology of ICE condition is still generally obscure. Irritation at the degree of corneal endothelium because of viral aetiology like Herpes simplex or Epstein-Barr infection and an uveitic pathology have been depicted before. High rates of HSV DNA has been found in the endothelial cells of ICE patients contrasted with controls [2]. It is viewed as inconsistent, generally one-sided and analyzed in youthful grown-ups, females and every so often in kids. Condition is regularly given lessening of vision in the first part of the day and change in the shape and position of understudy [3]. The "film hypothesis" was utilized in 1978 by Campbell to clarify the pathogenesis of ICE disorder. They conjectured that corneal endothelial cell could multiply and may foster primary deformities with the capacity to move causing the progressions noted in ICE syndrome [4]. Like Fuchs' dystrophy, the cut light picture in ICE shows "Mallet silver" or "Beaten bronze" appearance of the endothelium. Additionally, Iris changes, (for example, heterochromia, ectropion uveae, corectopia, entire arrangement, and iris decay) are seen on cut light assessment.

Gonioscopic assessment might show high PAS stretching out above Schwalbe line, which is pathognomonic for ICE condition. Cut light assessment, gonioscopy, tonometry, specular microscopy and confocal microscopy structure a fundamental piece of the assessment system used to analyze the subclinical variations of ICE disorder that might show itself asymptotically in the unaffected eye [5,6].

## **II. Materials and Methods**

All patients determined to have ICE disorder as referenced in our consideration measures analyzed between the October 2019-October 2021. An aggregate of 50 patients were remembered for our review in the wake of precluding prohibition measures and the information was reflectively investigated. Information relating to age, sexual orientation, clinical range of sickness, laterality, Visual sharpness, corneal and iris discoveries, foremost chamber (AC) profundity, gonioscopic discoveries, response in AC, relationship with glaucoma, clinical and careful administration was gathered, number of AGMs utilized, span of follow up gathered. Complete cut light bio microscopy, applanation tonometry, four mirror gonioscopy, expanded funduscopy were performed to decide corneal changes, iris discoveries, AC response, PAS, intraocular strain and Disk changes. In certain patients, presence of extreme corneal oedema deterred the presentation of specular microscopy and PAS appraisal. For diagnosing glaucoma Humphrey Visual field test was done in presence of clear cornea and adequate vision.

### **Inclusion Criteria**

ICE condition is characterized based on trademark discoveries of beaten-bronze or pounded silver appearance of endothelium, iris decay with opening and iris knobs with or without PAS.

- IOP >21 mm of Hg or  $\leq$  21mm of Hg with AGM/earlier Glaucoma filtration medical procedure (GFS) with optic nerve head changes normal for glaucoma was a rule to analyze glaucoma in the introducing patients.
- Secondary visual hypertension (OHT) was likewise included as glaucoma patients in our review.
- Patients were named CS, PIA and CRS based on typical or gentle iris decay with prevalent corneal contribution, iris decay with entire development, iris knobs separately.
- Cornea was reviewed as clear oroedematous.
- PAS was evaluated as gentle (<90), moderate (90 to 180), serious (>180-270) and broad (>270).

### **Exclusion criteria**

- Axenfeld-Reiger disorder
- Fuchs endothelial dystrophy.
- Uveitis, horrible point conclusion.
- Other essential and auxiliary point conclusion glaucoma were prohibited.

### **Statistical Analysis**

We embraced a review investigation of all review patients and got information relating to clinical attributes. Since the information was non-parametric, we utilized chi squared test and understudy T test to examine the information. ANOVA was likewise performed to search for difference. Investigations were led utilizing Stata Corp 97: Stata Statistical Software Release 5 and StatXact version 2.

## **III. Results**

We concentrated on 51 eyes of 50 patients with age scope of 7-65 years with middle age at show was 40.72 years. 28 (56%) were female and 22 (44%) were male. ICE condition was one-sided in 49 (98%), of which right was engaged with 25 (half) and left was associated with 24 (48%). Mean IOP of involved eye was  $23.70 \pm 11.7$  mm of Hg. PIA and CS variation of ICE disorder were equivalent in recurrence of 20 (40%). CRS was found as least variation of ICE disorder and was 10 (20%) patients. Out of 51 eyes of study bunch we had 43 (84.3%) eyes were phakic and 7 (13.7%) eyes were pseudophakic. There were no aphakic eye in our review bunch patients. 44 (88%) eyes were analyzed to have glaucoma at show, 1 (2%) eye was determined to have glaucoma during follow up. Out of 45 patients who all analyzed as glaucoma at show or during follow up 20 (44.4%) patients were treated with AGMs and staying 25(55.5%) patients were treated as glaucoma filtration medical procedure (GFS). Mean no of AGMs utilized were  $2.44 \pm 1.3$ . Out of 25 patients treated with GFS, 20(44.4%) eyes gone through trabeculectomy and 5 (11.1%) gone through Ahmed glaucoma valve. 8(17.7%) eyes had past GFS. Number of eyes had Diode CPC were 4 (8.8%). 6 (13.3%) eyes were gone through more than 1 medical procedures to control the IOP during the development. We have found in our review that middle period of patients gone through clinical and careful administration of glaucoma was 44.53 years (range 7-56) and 46.26 years (range 13-60).

#### **IV. Discussion**

In our review PIA and CS variations are of equivalent recurrence (40%). CRS (20%) was the most un-normal variation of ICE condition which was like Chandran et al in which PIA (52%) was the overwhelming variation followed by CS and the least was CRS. [13]. Laganowski et al case series likewise showed the comparative recurrence. Wilson et al [10] revealed that Cogan-Reese was the commonest in Caucasian populace, while Teekhasaenee et al detailed that Cogan-Reese condition was normal in the Thai populace [14]. This is reminiscent of the presence of an ethnic variety in the introduction of the illness [7]. ICE condition is commonly one-sided in show. In our review 98% of the patients were having one-sided association, which was like past investigations too.

Glaucoma is firmly connected with ICE condition. The commonness of glaucoma in our review was 90%. It goes from 46% to 82%. In our review 44.4% of glaucoma patients were made do with antiglaucoma drugs. In other distributed series it went from 12-40%[8]. These contrasts can be clarified by the varieties in the seriousness of the sickness and the development of against glaucoma meds over the long haul. Chandan et al concentrated on a case series of 202 patients and tracked down an entomb eye change in the introduction of ICE syndrome [9].

Unilaterality was shown in 183 (90%) subjects, and bilaterality in 20 (10%) subjects. Moderate iris decay (115; 52% eyes), Chandler disorder (87; 39% eyes) and Cogan-Reese condition (21; 9% eyes) were found in diminishing request of recurrence. 156 eyes (70%) had glaucoma at starting show and the normal intraocular strain in glaucomatous eyes was 24 (16, 38) mm Hg. Glaucoma filtration medical procedure for IOP control was needed in our review was 55.5% patients [10].

#### **V. Conclusion**

In our review, ICE disorder was one-sided, and adult females were all the more generally impacted. Glaucoma is firmly connected with ICE condition. Careful administration is needed in greater part of the impacted patients. ICE patients might require more than 1 medical procedure for IOP control. They are generally connected with corneal confusions which might require entering keratoplasty.

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