CONTACT LENS COMPLICATIONS IN INDIAN PATIENTS: THE CURRENT SCENARIO

Antara Mukherjee[1], Bikash Basu[2], T. K. Chatterjee[1*]
[1]Department of Pharmaceutical Technology, Jadavpur University, Kolkata,India.
[2]AMRI Medical Centre On Eye Division, Kolkata,India.

*** Corresponding Author:**
E-mail: crctkc@gmail.com
Tel: +91-33-2414 6890 (O)

ABSTRACT

Objective: To evaluate the ocular surface disorder in long term contact lens user with respect to different types of material used in India.

Methods : Data were collected over a 8 months period from 1st August 2009 to 31st March,2010,from AMRI Medical Centre on Eye Division, Kolkata. This study was done in a prospective manner and an analysis with regards to name, age, sex , refractive power, symptoms, duration of contact lens, diagnoses was done.

Results: Fourty four patients and fifty two eyes contact lens related complications were recorded. The mean age of this patient was 29.12 ± 2 years and male to female ratio was 1:1.14.Giant Papillery Conjunctivitis was the most common ocular surface disorder found ii 18 no. of eyes (32.14%), among 31 (64.58%) of myopic patient it was found 13 no. of eyes (37.14%).Corneal Infiltrates occurred in 5 no. of eyes (35.71%),among the total 10 (20.83%) of the hyperopic patients. Most patients 16 no. of eyes (26.92%) wore their lenses on monthly disposable lens. Soft contact lens material was associated with the majority of the Allergic Conjunctivitis (9,16.07%), Bacterial Conjunctivitis (3,5.36%) were the commonest complication seen. Corneal warpage, Tight lens syndrome, Keratoconjunctivitis complications occur in small case.21.42% of eyes were found using soft contact lens material and only 5.36% of eyes were found using hard contact lens material.

Conclusion: Giant Papillery Conjunctivitis to soft lens wear was the most common complication, followed by Allergic conjunctivitis and Corneal Infiltrates seen in AMRI Medical Centre, Kolkata.

Keywords: Contact lens, complications, Giant Papillery Conjunctivitis, Myopic, Hyperopic, Keratoconjunctivitis.

INTRODUCTION

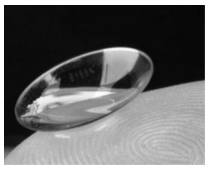
The last 20 years has been a tremendous increase in the use of contact lenses.[1]The ideal contact lens a small plastic wafer, design to rest on the cornea or sclera, is ordinarily used to correct refractive errors .[2,3]With these increased number of wearers, especially in the 20 to 30 years old age group, a large number of patients with contact lens related problems have been seen in AMRI Medical Centre on Eye Division, Kolkata. Complication must commonly associated with use include Giant Papillary conjunctivitis, Corneal Infiltrate, Allergic Conjunctivitis, Bacterial Conjunctivitis, Superficial Punctate keratitis, Superficial corneal Erosion ,Corneal warpage, Tight lens Syndrome, Keratoconjunctivitis .[4]Fewer severe complications are reported with RGP lens wear than with daily wear or extended wear soft lenses.[5,6]

In our study, we describe contact lens related complication with a special interest in the type of contact lens wear and various characteristic of these

patients like age, sex, refractive power, symptoms, type of contact lens as per material and used, duration of contact lens and diagnoses. The analysis of these variables and their influence on complication can aid the clinicians have noted that wearing contact lenses seems to reduce corneal sensivity.

MATERIALS AND METHODS

In the beginning of the study we go through the retrospective analysis of previous years data to have a background of the different types ocular surface disorder due to use of contact lens. We then prospectively observed all the patients using contact lens and observed at AMRI Medical Centre (Eye Division) from 1st August 2009 to 31st March 2010.Data were collected by frequently asked questionabout discomfort of contact lens and type of contact lens used.



Symptoms of presentation were noted. Then with the help of Clinician, actual ocular surface disorder were confirmed either by possible clinical tests or by diagnosis. Further comparison was made by type of material used in contact lens causing ocular surface disorder. During this 8 months study 52 eyes of 44 patients were studied. The mean age of this patient was 29.12 $\pm$ 2 years and the male to female ratio was 1:1.14.

RESULTS

Among these patients 31 (64.58%) were myopic,10 (20.83%) were hyperopic,2 (4.17%) with myopic astigmatism and rest 1(2.08%) was with aphakia.

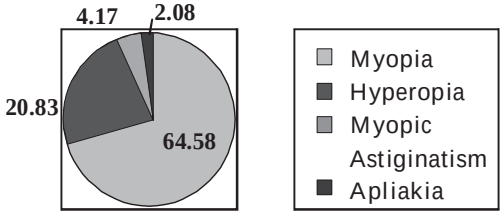


Table 1 shows the data of different types of corneal surface disorders found in eyes of the patients using contact lenses.

Table1: Ocular surface disorder in patients using contact lens

Ocular surface disorder	No. of Eyes	Percentage (%)
Giant Papillary Conjunctivitis	18	32.14
Allergic Conjunctivitis	9	16.07
Bacterial Conjunctivitis	3	5.36
Corneal Infiltrate	10	17.86
Corneal warpage	2	3.57
Tight lens Syndrome	2	3.57
Superficial punctate keratitis	3	5.36
Superficial Corneal Erosion	3	5.36
Keratoconjunctivitis	2	3.57

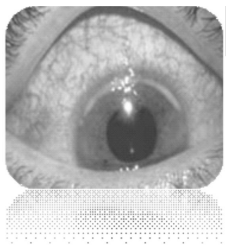


Figure a: A 22 year old women with acute on set of a Corneal Infiltrate in the right eye.

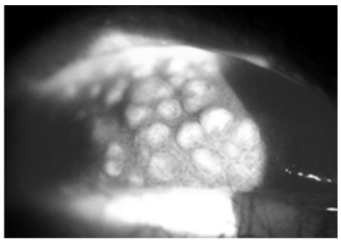


Figure b: Very large Papillae in the averted upper lid of a patient who wears hydrogel (soft) Contact lens.

A total of 52 eyes of 44 patients using contact lens including bandage contact lens were studied. Out of these, Giant Papillary conjunctivitis was the most common corneal surface disorder found in 32.14%

eyes. The next common corneal surface disorder found was Corneal Infiltrate in 17.86%. Another corneal surface disorders found were Allergic Conjunctivitis (16.07%), Bacterial Conjunctivitis, Superficial Punctate keratitis, Superficial corneal Erosion, each with 5.36% and Corneal warpage, Tight lensSyndrome,Keratoconjunctivitis each with 3.57% of eyes.

Among 64.58% of myopic patients, Giant papillary conjunctivitis (GPC) were most Common ocular surface disorder with 37.14% of eyes. Allergic conjunctivitis was next common with 17.14%. Another ocular surface disorders found were corneal infiltrates (14.28%), Superficial punctate keratitis and superficial corneal erosion, each with 8.57%. Corneal warpage was found 5.71% of eyes. Among all myopic eyes, tight lens syndrome was least common i.e. with 2.85% case.

Table 2: Ocular surface disorder in Myopia patients

Ocular Surface Disorder	No. Of Eyes	Percentage (%)
Giant Papillary Conjunctivitis	13	37.14
Allergic Conjunctivitis	6	17.14
Bacterial Conjunctivitis	2	5.17
Corneal Infiltrate	5	14.28
Corneal Warpage	2	5.71
Tight Lens Syndrome	1	2.85
Superficial Punctate Keratitis	3	8.57
Superficial Corneal Erosion	2	8.57

Figure 1: According to Ocular Surface Disorder in Myopia Patient

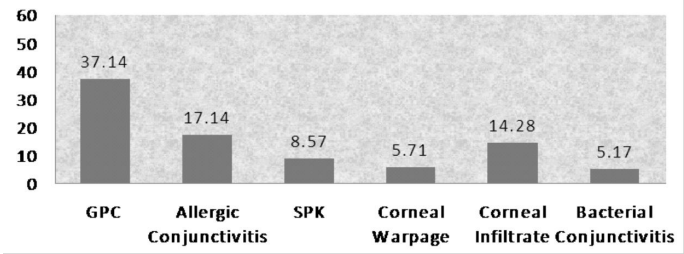


Figure 1 shows the according to the Ocular Surface Disorder i.e. Giant Papillery Conjunctivitis,Allergic Conjunctivitis,Superficial Punctuate Keratitis,Corneal Warpage,Corneal Infiltrate,Bacterial Conjunctivitis.

Among the total 20.83 % of the Hyperopic patients, the most common ocular surface disorder was Corneal Infiltrate in 35.71% eyes. Others were Allergic Conjunctivitis and Giant Papillary Conjunctivitis each with 21.42% and keratoconjunctivits with 14.28%. Tight Lens Syndrome and corneal surface erosion was least common each with 7.14%.

In Case of Myopic Astigmatism patients, the corneal surface disorder found was Giant Papillary conjunctivitis in case of Aphakia Patient the corneal surface disorder found was Bacterial conjunctivitis

Table 3: Ocular Surface Disorder in Hyperopic Patients

Ocular Surface Disorder	No. Of Eyes	Percentage (%)
Corneal Infiltrate	5	35.71
Giant Papillary Conjunctivitis	3	21.42
Allergic Conjunctivitis	3	21.42
Keratoconjunctivitis	2	14.28
Tight Lens Syndrome	1	7.14
Superficial Corneal Erosion	-	-

Figure 2: According to Ocular Surface Disorder in Hyperopia Patient

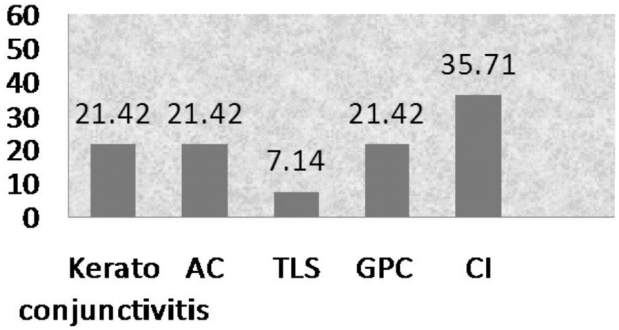
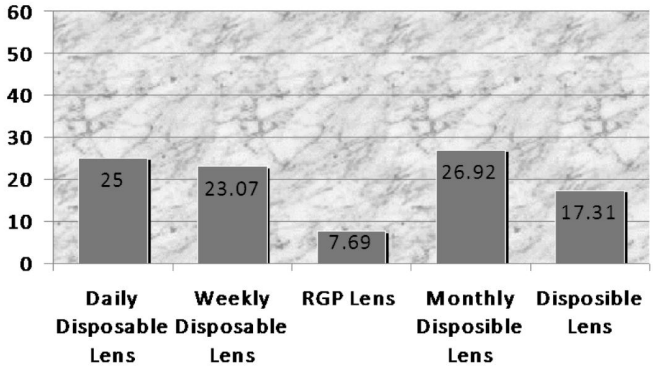


Table 4 shows that, Etafilcon A (Group IV) was most common lens material used, found in 21.42% of eyes and the most common corneal surface disorder was found GPC, Allergic conjunctivitis and corneal Infiltrate. Next contact lens material was Polymacon (Group I), found used in 16.07% of eyes and the common corneal surface disorders found were corneal infiltrate, GPC , Superficial corneal erosion and corneal punctate keratitis. Nelfilcon (Group II) was found used in 8.92% of eyes and the common corneal surface disorder associated with this was GPC and corneal infiltrate. Another were Hilaficon (Group II), Vifilcon (Group IV) each with 7.14% of eyes and the common corneal disorders were GPC, corneal infiltrate and allergic conjunctivitis. A total of 16.07% of eyes were found using contact lens made up of Silicone hydrogel as a contact lens material. Among them Lotrafilcon, Balafilcon A and Galyfilcon were the most common. And the corneal disorders associated with this was found Giant Papillary conjunctivitis, Allergic Conjunctivitis and Corneal Infiltrate. Patients using Rigid gas permeable Contact lens was found less (7.14% eyes) and the ocular surface disorder associated with this lens was Dryness and Bacterial conjunctivitis. Only 5.36% of eyes were found using hard contact lens made up of Polymethyl methacrylate (PMMA), and in hard contact lens user, the corneal surface disorder was found mainly Tight lens Syndrome and Corneal warpage.

Table 4: Surface disorder on the basis of specific lens material

USAN	Monomer	No. of corneal	Per.	Common
Eyes	(%) disorder			
Etafilcon A	HEMA, MA	12	21.42	GPC, AC, C.I
Polymacon	Poly HEMA	9	16.07	Corneal
			Infiltrate	
Nelfilcon	Modified PVA	5	8.92	GPC, CI
Vifilcon	HEMA, PVP, MA	4	7.14	GPC, AC, CI
Lotrafilcon	DMA, Siloxane macromer	4	7.14	GPC, AC, CI
Ocufilcon D	HEMA, MA	1	1.78	Corneal Infiltrate
Tetrafilcon	HEMA, MMA, MA	1	1.78	Corneal Infiltrate
-	PMMA	3	5.36	TLS, CW
Hilafilcon	HEMA, NVP	4	7.14	GPC, KC
Galyfilcon	HEMA, MA	2	3.57	GPC, AC
Galyfilcon A	HEMA, PVP, MA	1	1.78	GPC
Balafilcon A	NVP, TVPC, NCVE, PBVC	2	3.57	CSE, CI
Paflufacon B	PMMA, Silicone,			
	Fluoro Polymer	4	7.14	Dryness, BC

Figure 4: According to Replacement Schedule



DISCUSSION

In recent times,it was estimated that 125 million use contact lens worldwide (2%),[7]including 28 to 38 million in the US[8] and 13 million in Japan.[9]Complication due to contact lens wear affect roughly 5% of contact lens wearers each year.[10] In previous survey on contact lens wear,most contact lens wearer were women. [11] In our study 53% of the contact lens users were found to be females.Lens type,wearing schedule,lens age,symptoms and patient age were evaluated as predictor variable for their effect on complication prevalence.

In our study the most prevalent complication was Giant papillery conjunctivitis occuring in 18 no. of eyes (32.14%).There have been several reports documenting contact lens wear as the main identificable risk factor in Giant papillary conjunctivitis. [12]In Singapore Tan JT et al.[13] cited contact lens wear in 15.5% of their patients with Giant papillery conjunctivitis.Similarly Sucheki JK et al. [14]cited contact lens wear was identified in 5.5% of Giant papillery conjunctivitis seen.In our study,17.86% (no. of eyes 10) of our patients with Corneal Infiltrates wore soft contat lens and the majority 26.92% (no. of eyes 16) wore soft monthly disposable lens.Only 7.69% cases were found who used RGP lens.In reports by Keech et al.,RGP lens wear resulted in the lowest prevalence of complications.However,after adjusting for lens wear schedule,no significant difference in risk was identified.The type of lenses used and prescribed vary markedly between cuntries with rigid lenses accounting for over 20% of currently prescribed lenses in Japan,the Netherlands and Germany but less than 5% in scandinavio.In previous study Silicon hydrogel lenses that many type of soft lenses had only just been introducd into the market and were not yet commonly available.But in oue study soft contact lens was found in 21.42% of eyes and the most common corneal surface disorder was found Giant papillery conjunctivitis,Allergic Conjunctivitis and Corneal Infiltrates.Patient with RGP contact lens found 4 no. of eyes (7.14%),[15]for this contact lens wearinh group dryness was the most common primary symptom.We also report that soft lens wearers report them to occur more frequently than hard lens wearers with the result of a similarly study done in Mc Monnies and Ho.[15]Only 5.36% of eyes were found using hard contact lens made up to PMMA.With the result of a similar study done in Singapore.[13]

In our study, epithelial problems made up 5.36% of all complication and were largely less related Superficial Punctuate Keratitis and Superficial Corneal Erosion.These are postulated to be partly caused by mechanical trauma on cornea or solution related toxicity.16.07% (no. of eye 3) and 5.36% (no. of eye 3) experienced allergic and bacterial conjunctivitis.

We studied that up to 75% of contact lens wearer had symptom of ocular irritation like redness,light sensitivity ,blurred vision and variable degree of pain.Soft lens wearers these symptoms to occur more frequently than non lens wearer.Thirty one patients (64.58%) occurred in myopic eye cases,with 13 no. of eyes (37.14%) having Giant papillery conjunctivitis.Some ten patients (20.83%) occurred in hyperopic eye cases,with 5 no. of eyes (35.71%) having Corneal Infiltrates.

This was a one centre survey, our main advantage of our study was there was standardization of classification or diagnoses of contact lens related complication seen. Contac lenses have varying success in correcting the need for reading glasses with bifocal contact lenses being successful in only about 50 % of people.Successful contact lenses wear depend on adequate oxygen supply to the cornea and proper tear exchange and unchanging biocompatibility of lens material. The incidence of these complication from lens wearing can be prevented if they are utilized properly, in terms of proper lens fitting,appropriate wearing schedule and stringent lens hygiene.Contact lens have many good aspects to them and that is why people continue to grow more popular with each passing day.Risk and benefits of lens wear should always be carefully weighed before initiation of wear. Moreover after 8 months a variety of symptoms are observed of the different diagnosis on the use of more soft contact lens.These problems ranges from self limiting to sight threatening which require rapid diagnosis and treatment to prevent vision loss. So contact lens utility is very much demanding and infuture the usefulness of contact lens will be very high and patient will be feeling very comfort after using contact lens.

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