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ORIGINAL RESEARCH ARTICLE

PROFILE OF CONTACT LENS PATIENTS ATTENDING TO BIRATNAGAR EYE HOSPITAL, NEPAL

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ABSTRACT

Background: Contact lens is an artificial device whose front surface substitutes the anterior surface of the cornea. The contact lens can be worn to correct vision or for cosmetic or therapeutic reasons. The objective of the study was to determine the profile of contact lens patients attending Biratnagar Eye Hospital, Nepal.

Methods: The hospital-based cross-sectional study was done. All the patients referred to the contact lens clinic of Biratnagar Eye Hospital, Nepal for a contact lens trial were included in this study between 1st January 2016 to 31st December 2019. Data were collected by an optometrist trained in contact lens care and descriptive analysis was performed by using SPSS -17 versions.

Results: The mean age (±SD) of the patient was 22.9 (±9.6). Most of them were male 178 (55%) and from India 234 (72%). The majority of patients were in the age between 19 to 40 years 194 (60%). Keratoconus 253 (39%) was the most common ocular disorder found followed by myopia 138 (21%) and astigmatism 56 (9%). Most of the eyes had high refractive errors 287 (44%). Contact lens trial was done in 535 (82%) eyes and it was used for optical correction in 455 (70%) eyes. Rigid Gas Permeable 271 (51%) contact lens was mostly tried followed by soft contact lens 194 (36%). After using a contact lens, 548 (84%) eyes got normal visual acuity.

Conclusions: Keratoconus was the most common ocular disorder found followed by myopia and Astigmatism. Rigid Gas Permeable contact lens was mostly prescribed for vision correction. There was a significant improvement in visual acuity after giving contact lenses.

INTRODUCTION

Contact lens is an artificial device whose front surface substitutes the anterior surface of the cornea. The contact lens can be worn to correct vision or for cosmetic or therapeutic reasons. Contact lenses are gaining popularity in developing countries as an alternative to spectacles for the correction of refractive errors due to better cosmesis.[1] Contact lenses can be classified as Hard lenses, Rigid Gas Permeable (RGP) lenses, and Soft lenses.[2] Orthokeratology lenses are gas permeable lenses that are used to retard the progression of myopia while prosthetic lenses are used to hide the cosmetic blemish.[3] Keratoconus(KCN) is a bilateral non-inflammatory corneal ectasia with an incidence of approximately 1 per 2,000 in the general population which is corrected by contact lenses.[2,4] Contact lenses are gaining more popularity as these can be worn for a longer time (extended wear) and are also available in a disposable variety. For all types of contact lenses, wearing modalities also varies like daily disposable, weekly disposable, monthly disposable, quarterly disposable, six-monthly disposable, and yearly disposable.[2] Contact lens wearers had a significantly better quality of life than spectacle wearers.[5] Although the quality of life is better among contact lens wearers than spectacles, the use of contact lenses is low in developing countries.[6] There are an estimated 140 million people in the world wearing Contact lenses (CL) for refractive purposes.[7] The number of contact lens wearers is increasing day by day in developed and developing countries like Nepal.[1] The objective of the study was to determine the profile of contact lens patients attending Biratnagar Eye Hospital (BEH), Nepal.

METHODS

The hospital-based cross-sectional study design was conducted. All the contact lens patients referred to the contact lens clinic for contact lens trial were included in this study between 1st January 2016 to 31st December 2019. Patients with dry eye, conjunctivitis, and other lid diseases like blepharitis, meibomitis, stye, chalazion, were excluded from the study. Contact lens trial was not done in emmetropic eyes. The number of bandage contact lenses was not included in this study because it was not given by the contact lens clinic in this hospital. Visual acuity measurement of both the eyes was done separately with and without glasses by using a log MAR chart.

Objective and subjective refraction was performed, extraocular movement, cover test, cover-uncover test, anterior segment examination, posterior segment examination was performed. Keratometry or Corneal topography was also performed to see the curvature of the cornea while Schirmer's test was performed to rule out dryness to all the suitable patients.[2] All the examinations were done by an optometrist trained in contact lens care. Contact lens trial was performed on all the patients depending upon the need. Ethical clearance was taken from the Institutional Review Committee (Ethics approval No. BEH-IRC- 37/A) of Biratnagar Eye Hospital. The data was entered in excel and analyzed using the SPSS- 17 version.
Refractive errors were classified according to the following criteria.[8]

A) Hyperopia: Refractive error at least +0.5 D. this was further classified as Low (+0.50D to +3.0D), Medium (+3.0D to <+6.0D) and High (more than +6.0D)

B) Myopia: Refractive error at least -0.5 D. this was further classified as Low (-0.50D to -3.0D), Medium (-3.0D to <-6.0D) and High (more than -6.0D)

C) Astigmatism: astigmatism was classified as simple hyperopic astigmatism (SHA), simple myopic astigmatism (SMA), compound hyperopic astigmatism (CHA), compound myopic astigmatism (CMA), mixed astigmatism (MA).

The Visual Acuity (VA) was categorized as per WHO guidelines.[9,10]

VA in Log MAR	Categorize
0.0 to 0.5	Normal
0.6 to 1.0	Visual Impairment
1.0 to 1.3	Severe Visual Impairment
<1.3 to NPL	Blind

RESULTS

A total of 650 eyes of 325 patients were included in the study. Most of them were male 178 (55%) and from India 234 (72%). The majority of the patients were in the age between 19 to 40 years 194 (60%). The mean age of the patient was 22.9 and SD ±9.6 with a minimum of 6 and a maximum of 65 years of age (Table 1).

Table 1: Demographic profile of patients visiting BEH(N=325)

Gender	Frequency (%)
Male	178(55)
Female	147(45)
Country	
Nepal	91(28)
India	234(72)
Age Categories	
6 to 18 year	114(35)
19 to 40 year	194(60)
41 to 65 year	17(5)
Mean age 22.9, SD±9.6	

Keratoconus 253 (39%) was the most common ocular disorder found followed by Myopia 138 (21%) and astigmatism 56 (9%). Most of the eyes had high refractive errors 287 (44%) (Table 2).

Table 2: Profile of ocular disorders and amount of refractive errors among patients visiting BEH(N=650)

Diagnosis (Eyes)	Frequency (%)
Emmetropia	102(16)
Hyperopia	14(2)
Myopia	138(21)
Astigmatism	56(9)
Keratoconus (KCN)	253(39)
Corneal Opacity (CO)	81(13)
Others	6(1)
Amount of Refractive Errors (Eyes)	
No Refractive Error found	189(29)
Low	48(7)
Medium	126(19)
High	287(44)

The maximum number of patients was examined in the year 2019 which was nearly 3.5 times higher than in the year 2016 (Figure 1).

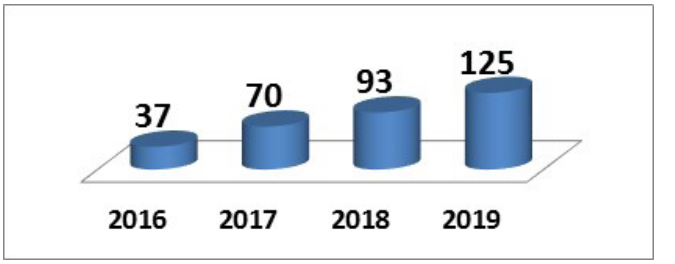

Figure 1: Number of patients examined in 4-year duration among patients visiting BEH

Out of total Contact lenses patients, a contact lens trial was done in 535 (82%) eyes among which contact lens was used for optical correction in 455 (70%) eyes. Out of the total contact lens trial, RGP 271 (51%) contact lens was mostly tried followed by soft contact lens 194 (36%) (Figure 2).

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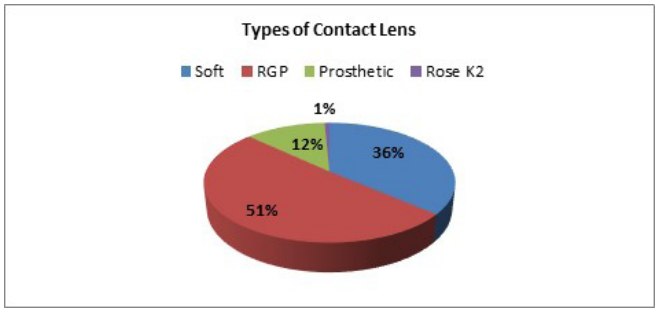
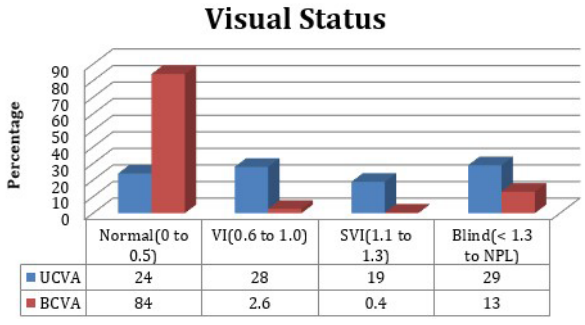


Figure 2: Types of contact lenses prescribed in 535 eyes among patients visiting BEH

Visual acuity was improved to normal in 548 (84%) eyes after the contact lens trial (Figure 3).



	Normal(0 to 0.5)	VI(0.6 to 1.0)	SVI(1.1 to 1.3)	Blind(< 1.3 to NPL)
UCVA	24	28	19	29
BCVA	84	2.6	0.4	13

Figure 3: Uncorrected Visual Acuity (UCVA) and Best Corrected Visual Acuity (BCVA) among patients visiting BEH

DISCUSSION

In the contact lens department of Biratnagar Eye Hospital, the most common ocular disorders found were keratoconus followed by myopia and astigmatism. Most of the eyes had high refractive errors and an RGP contact lens was mostly used for the correction of vision. There was a significant improvement in visual acuity after giving contact lenses among the patients.

In comparison to other eye hospitals in the eastern region of Nepal, the contact lens clinic of this hospital has examined a large number of patients which also includes referral patients from other eye hospitals. The findings of this study showed that the number of contact lens wearers was increasing significantly in the four-year duration which was similar to the study done in Nepal.[1] In this study males were slightly more contact lens users compared to females which were different from other studies.[1,10,11] The reason might be the patient with keratoconus causing the visual disturbance. Contact lens wearers were mostly youngsters and least were presbyopes which were similar to the study from Nepal[1] but it was different from the other study which showed both youngsters and presbyopic age were using contact lenses equally.[10]This might be due to low awareness among the presbyopic users in Nepal. In this study, the RGP contact lens was most commonly prescribed compared to other types of contact lens which was different from the studies [1,12,14] where soft contact lens was most commonly prescribed. The reason for the high use of RGP contact lenses might be due to the patients having keratoconus and astigmatism in which RGP contact lenses are the better option for vision correction. Nowadays mostly prescribed contact lenses were silicone hydrogels material and soft toric lenses compared to RGP [15, 16] which was different from our study due to the unavailability of different types of contact lenses with different materials. In this study, Keratoconus was a major ocular disorder and contact lens was used mostly for optical correction which was similar to the study done in Brazil.[17]

Although BEH is a high-volume center, and more than 35000 spectacles were dispensed every year, a very small number of contact lens patients were referred to the contact lens clinic. Patients had demanded different types of contact lenses but we had limited options so we could not fulfill their demand. The data was from a single institution that lack generalizability.

CONCLUSION

The common ocular disorders were keratoconus followed by myopia and astigmatism with a high degree of refractive errors. The majority of contact lenses prescribed were Rigid Gas Permeable (RGP) for optical correction. There was a significant improvement in visual acuity after correction with contact lenses. There is a need to create awareness regarding contact lens practice among the patients as well as eye care practitioners who might need a contact lens to get maximum benefit. We recommend BEH management make available all types of contact lenses as per the need and demand of patients in contact lens clinics.

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CONFLICT OF INTEREST: None

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