Original Article

Increase use of contact lenses for optical correction

P. Paudel, J. Khadka, A. K. Sharma, S. Shakya, J. K. Shrestha, D. N. Shah

Tribhuvan University, Institute of Medicine, B. P. Koirala Lions Centre for Ophthalmic Studies
Correspondence to: Paudel P, Bachelor of Optometry, FIACLE
(e-mail: paudel_prakash@yahoo.com)

Introduction: Contact lenses (CL) are considered as a widely accepted modality of refractive correction in the last few decades, though their history is nearly about 100 years old. Millions of people are wearing contact lenses all over the world. Every year the number of CL wearers has increased significantly. No definite statistics are available regarding the number of people wearing contact lenses in Nepal. Contact lenses are not used only for refractive correction but also for therapeutic and cosmetic use.[1]

Methods: The main purpose of the study was to find the popularity of contact lenses irrespective to other optical correction. A hospital based retrospective study was conducted evaluating the medical records of 848 CL patients attended in CL clinic at B. P. Koirala Lions Centre for Ophthalmic Studies.

Results: In this study, the number of CL wearers was found to increase significantly every year. The number of contact lens wearers in the year 2002-2003 was 158 where as in the later years the number reached up to 326 and 364 respectively. Similarly, the numbers of RGP wearers and bandage CL wearers also increased significantly in comparison to previous years. Almost 90 percent wearers were using soft contact lens. It was found to be more popular among the age group of 21yrs to 30 yrs. The number of female wearers was predominant than the male wearers. The contact lens wear ocular complications were found to be very rare.

Conclusion: In Nepal, contact lenses are being considered as suitable alternatives for optical correction due to better cosmesis than the conventional mode of optical correction.

Introduction

Contact lenses are thin transparent lenses made up of different materials e.g. PMMA, HEMA, Silicon-Acrylic etc. These are used for better visual, protective and cosmetic functions. Broadly speaking, the contact lenses can be classified into the following categories: Hard lenses, Rigid gas permeable (RGP) lenses, Soft lenses.[1,3]

Hard lenses are the first lenses to emerge with the introduction of PMMA (polymethyl methacrylate), which is an acrylic plastic lens introduced by Kevin Touhy in 1946. These lenses were popular till 1980's. Because of its poor oxygen transmissibility that results to corneal hypoxia, these are not much preferred now. Later on, RGP lenses made of silicone acrylate and CAB (Cellulose acetate butyrate) were introduced in1970's, which have better oxygen transmissibility. Hydrogel (HEMA), a soft contact lens, was introduced by Wichterle & Lim in 1961. With introduction of newer technology, different design and materials of contact lenses were emerged in late 1990's. Contact lenses are gaining more popularity as these can be worn for longer time (extended wear) and are also available in disposable variety.[1, 3]

Today many patients wear varieties of contact lenses (soft, toric, RGP, bifocal etc) for their refractive correction. Bandage contact lenses are used following refractive surgeries and alter corneal transplantation e.g. LASIK/LASEK, PTK, and PKP etc. This can also be used in cases of neurotrophic keratitis. Cosmetic and crazy lenses are becoming more popular among models and celebrities. Semi rigid lenses (RGP) are often used to retard the progression of myopia (Orthokeratology). Prosthetic lenses are used to hide the

cosmetic blemish.[3,4]

Every year newer materials with better quality are being manufactured. With new advancement and better understanding of corneal topography, tear film, oxygen permeability/ transmissibility, Contact Lens practitioners have built up their confidence in contact lens practice. At the meantime, the number of corneal complications in contact lens wearer is becoming less and less because of good materials, proper counseling and better compliance.[1,2] For the first time in Nepal, contact lens practice was started in an institutional level at B. P. Koirala Lions Center for Ophthalmic Studies (BPKLCOS) in 1999. The in-flow of CL wearers increased drastically in the subsequent years so the center established a fully equipped contact lens clinic with well maintained recording system from the year 2002. As there is no single reported statistics about the number of Nepalese people wearing contact lenses was available, a hospital based retrospective study was conducted at contact lens clinic of BPKLCOS.

Contact lens fitting and counseling

Methods

The medical records of 848 patients examined at contact lens clinic at BPKLCOS over the period of three years (July 2002 to Jun 2005) were reviewed and relevant data was extracted. Number of patients examined in each year, age and gender, types of contact lenses prescribed and types of ocular complications were analyzed.

Results

The maximum number of patients was examined in the year 2004-2005. In the year 2003-2004, a total of 326 contact lens patients were examined which was nearly double than the previous year number *(Fig 1)*.

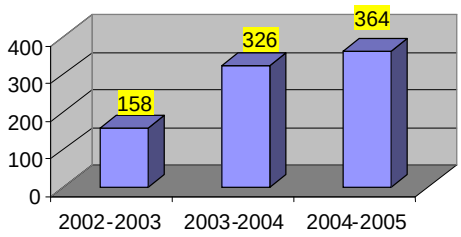

Fig. 1. Number of patients examined in three years

Almost more than half of the contact lens wearers were ranged in the age group 21 yrs to 30 yrs. Contact Lens was least common after presbyopic age. *(Fig 2)*

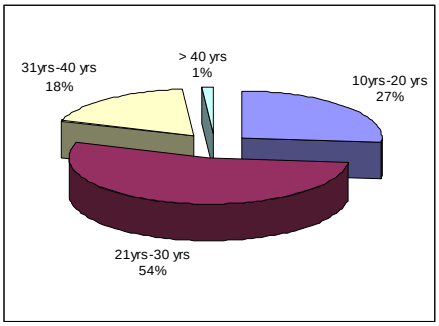

Fig. 2. Age Distribution

More than two-third of CL wearers were female accounting 68 percent *(Table 1)*. It was interesting to note that the number of male CL wearers decreased in the later year *(Fig 3)*.

Table 1. Gender Distribution

Gender	Number	Percent
Male	271	32%
Female	577	68%

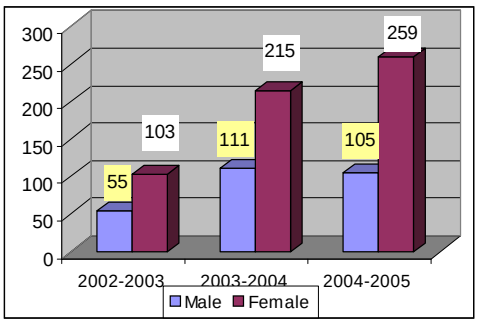

Fig. 3. Gender distribution

Almost 89% of CL wearers were using soft contact lenses *(Fig. 4).* There was an increasing trend for soft and hard contact lens wear where as prosthetic wear was least to observe every year. There was a significant increase in numbers of bandage contact lens wearers in the year 2004-2005. Cosmetic contact lens wears were very few *(Table 2).*

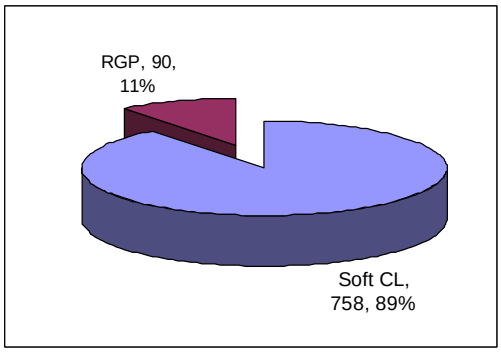

Fig 4: Types of contact lenses prescribed

Table 2: Types of contact lenses prescribed

Year	SCL	RGP	Prosthetic SCL	Bandage	Presbyopic CL	Cosmetic CL
2002-2003	133	20	3	1	1	0
2003-2004	284	30	8	1	2	1
2004-2005	308	40	4	9	1	2

Almost 92% CL wearers were found normal. Among CL wear ocular complication, ocular hyperemia was the commonest accounting for 2.3% followed by Peripheral corneal Vascularization (1.5%) & superficial punctate staining (1.4%). Corneal ulcer was seen in only one case (0.1%) *(Table 3).*

Table 3: Types of ocular complication

Types of Ocular Complication	Number of Patients				
	2002-2003	2003-2004	2004-2005	Total	%
Ocular Hyperemia	3	11	6	20	2.3
Peripheral corneal Vascularization (PCV)	2	7	4	13	1.5
Superficial Punctate Staining	3	6	3	12	1.4
Contact Lens-induced Papillary Conjunctivitis (CLPC)	3	6	2	11	1.3
Contact Lens Associated Red Eye (CLARE)	2	3	1	6	0.7
Contact Lens Peripheral Ulcer (CLPU)	0	0	1	1	0.1

Discussion

A total number of 848 patients attended in Contact Lens Clinic at BPKLCOS between mid 2002 to mid 2005 were included in the study. The result has shown significant increase in number of contact lens wearers during three years period. Number of contact lens patients in the year 2002-2003 was 158 which in later years increased by cent percent. However, Alice Ms Young et al in his recent year article have reported one-fourth increase of CL wearers in fifteen years duration.[5]

In our study, number of female CL wearers was more than two-third comprising 68%. This results tally with the findings put forward by Woods CA & Morgan PB who has reported 65% female wearers in their study.[7]

The youngsters were found more interested in contact lens wear. We found CL wearers aged between 20 and 30 were more accounting 54% where as contact lens was least common after presbyopic age. However, discrepancy regarding age group was reported in a research conducted by Woods & Morgan PB. They found youngsters and incipient presbyopes equally wearing contact lenses.[7]

Most of the wearers preferred soft contact lenses that account 89%. This number is almost similar to that reported by Cheung SW et al who found 88% wearers using soft contact lenses.[6] Similarly, a little higher number of soft CL wearers was reported by Alice Ms Young et al & Woods CA and Morgan et al that account 93%.[5,7] RGP fit was reported to be same as that of ours that is 11% by Cheung at al & Alice Ms young et al.[5, 6] However, a recent result by Alice Ms Young et al has showed that the RGP wearers are decreasing.[5] In our study, bandage and cosmetic contact lens were few in comparison to the western data.[1, 9]

Almost 92% CL wearer were found with no complication where as Kerch PM et al research results showed 61% normal.[8] No major complication was reported by him as in our findings. Some minor complication like ocular hyperemia (2.3%) followed by PCV(1.5%) and superficial punctate staining (1.4%) was found in our study where as higher percent has been reported by Kerch; punctate staining accounting 17.3% and neovascularization accounting 11%.[8] Not a single RGP wearer came with significant complication in our study similar as that reported by Kerch et al. (Table 2) These complications were found among those patients who started wearing contact lenses prescribed from local market and never undergone detail ocular examination and proper counseling on care and maintenance. It is very mandatory

to have regular eye check up and strictly follow the instructions given on care and maintenance during dispensing for successful CL wear.[1, 2, 4]

The major complications in our patients were very rare. It could be because of contact lens care system discussed to every patient at the time of dispensing. Besides these, detail counseling on wearing modalities, duration of wear and maintenance were also discussed. Improper handling of lenses, less time devoted to care and maintenance of contact lens may result to serious vision threatening complications so such practice should be kept away for better outcome.[3, 5]

Conclusion

Females seem to be more interested in wearing CL than their counterparts. Soft CL is used more frequently than RGP CL. Ocular complications seem to be not as common however ocular hyperemia was the commonest complication.

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