Contact Lens Impact on Quality of Life of Keratoconus Patients in Ghana

Heinz Otchere *OD, MSc*[1], Abraham Gaitu *OD*[2], Charles Darko-Takyi *OD, M(Optom)*[2],
Andrew Owusu-Ansah, OD, MSc[2]

[1] School of Optometry & Vision Science, University of Waterloo, Ontario, Canada
[2] Department of Optometry, Allied Health Sciences, University of Cape Coast, Cape Coast, Ghana

Introduction

❑ Keratoconus is a chronic, typically asymmetric, non-inflammatory axial ectasia of the cornea whereby the normally round cornea thins and bulges into a cone-like shape. [1]

❑ This condition is associated with decreased visual acuity secondary to corneal steepening, irregular astigmatism, progressive myopia and central corneal scarring which results in the deflection of light as it enters the eye to the retina causing distorted vision. [2,3]

❑ The prevalence of keratoconus in Ghana is currently unknown as it is thought to be extremely low/rare. This may be partly related to low doctor-to-patient ratio, trained specialists to diagnose and offer the needed care and lack of education among the general population. [4]

❑ Keratoconus rarely leads to blindness, [5] however, most of the reported clinical cases in Ghana are usually in the moderate and advanced stage which presents significant impact on vision, financial burden (moving from one eye clinic to the other) and social health for these patients.

Purpose

❑ To assess the quality of life of keratoconus patients in Ghana using the standardized contact lens related quality of life questionnaire.

Methods

❑ This was a clinic-based cross-sectional study in which 20 participants (40 eyes) with previous diagnosis of keratoconus were enrolled.

❑ Information on socio-demographic, visual acuity with contact lenses using LogMAR chart, keratometry readings, contact lens type and usage were obtained.

❑ A self-administered 28-item CLIQ questionnaire was administered to the participants.

❑ The questionnaire comprises of five different sections with each section aimed at eliciting the contact lens impact on an aspect of the participant's life.

❑ The sections were: **daily activities, eye symptoms, functional vision, psychometric properties and refractive correction.**

Methods (cont'd)

❑ To evaluate the CLIQ questionnaire, the responses were reclassified into positive and negative (in percentages) and then also using the standardized CLIQ assessment criteria.

❑ The average of these 28 items gives the **CLIQraw score** which is converted **to CLIQperson measure**

❑ The questionnaires were analyzed using the double-asymptotic nonlinear equation:

$$CLIQ_{person\ measure} = 34.41 \times \log(CLIQ_{raw\ score}/5 - CLIQ_{raw\ score}) + 26.69$$

❑ This formula is set on a scale of 0 to 100, where higher scores indicate better quality of life.

❑ This procedure was used to process all the questionnaire responses for all the participants.

Results

❑ Nineteen male and one female were recruited into the study with mean age of 29.7 ± 6.53 years (range:21–43).

❑ The overall impact on physical properties was (positive: 72.10%, negative: 27.90%), eye symptoms (positive: 61.25%, negative: 38.75%), functional vision (positive: 67.00%, negative: 33.00%), psychometric properties (positive: 14.01%, negative: 85.99%), feeling of well-being with refractive correction (positive: 60.63%, negative 39.37%), Figure 1.

❑ There was no significant difference of all the measured parameters on the type, years and contact lens wearing time (p>0.05), Table 1.
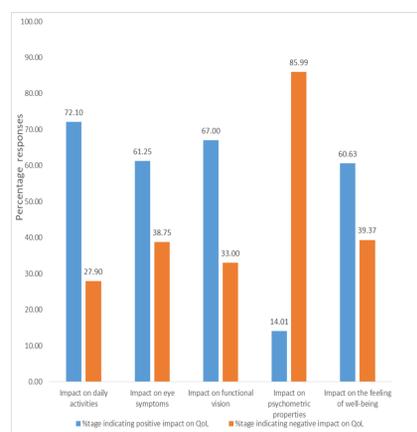
Figure 1: Percentage of QoL indicators on keratoconus patients

Table 1: Contact Lens Characteristics and Assessment of CLIQ indicators

Results (cont'd)

❑ The average CLIQraw score and average CLIQperson measure were 3.53±0.34 and 42.15±1.44 respectively. CLIQperson measure for gas permeable, scleral and soft contact lenses were 42.32 ± 1.54, 41.99 ± 1.42 and 41.31± 0.00 respectively (p=0.30)

Discussion

❑ Contact lens had significant positive impact on the quality of life parameters except for psychometric properties.

❑ Mean CLIQperson measure for types of contact lenses were 42.32 ± 1.54, 41.99 ± 1.42 and 41.31± 0.00 for gas permeable, scleral and soft contact lens respectively (p=0.30). Similar findings have been reported by Erdurmus et al [6] and Yildiz et al. [7]

❑ The overall mean CLIQperson measure was 42.15 ± 1.44. A score of 50 on the CLIQ scale represents the mean person score in a population of normal ametropic contact lens wearers. [8]

Conclusions

1. Contact lenses have the likelihood to have positive impact on quality of life indicators except for psychometric properties

2. Gas permeable, scleral and soft contact lenses have similar impact on quality of life, although, gas permeable lenses provided slightly better visual outcomes than the other lenses

3. Further studies is needed on the epidemiology of keratoconus patients in Ghana and barriers to the management of the condition.

References

1. Espandar L, Meyer J: Keratoconus: Overview and Update on Treatment. Middle East Afr J Ophthalmol 2010, 17(1):15-20.
2. Mrazovac D, Barisic Kutija M, Vidas S, Kuzman T, Petricek I, et al. Contact lenses as the best conservative treatment of newly diagnosed keratoconus–epidemiological retrospective study. Coll Antropol 2014, 38(4):1115-1118.
3. Barrett M, Mannis MJ: Contact lenses in the management of keratoconus. Cornea 2011, 30(12):1510-1516.
4. Ilechie A, Otchere H, Darko-Takyi C, Abraham C: Access to and Utilization of eye Care Services in Ghana. Int J Health Res; 6(3): 7-15
5. Moschos MM, Nitoda E, Georgoulis P, Balidis M, et al. Contact Lenses for Keratoconus- Current Practice. Open Ophthalmol J 2017, 11:241-251.
6. Erdurmus M, Yildiz EH, Abdalla YF, Hammersmith KM, et al. Contact lens related quality of life in patients with keratoconus. Eye Contact lens 2009, 35(3):123-127.
7. Yildiz EH, Erdurmus M, Elibol ES, Acar B, et al. Contact lens impact on quality of life in keratoconus patients: rigid gas permeable versus soft silicone-hydrogel keratoconus lenses. Int J Ophthalmol 2015, 8(5):1074-1077.
8. Pesudovs K, Garamendi E, Elliott DB. The Contact Lens Impact on Quality of Life (CLIQ) Questionnaire: development and validation. Invest Ophthalmol Vis Sci 2006, 47(7):2789-2796.

Email contact for correspondence: (hotchere@uwaterloo.ca)