Title : Meiboscore correlation between contact lenses weares and no contact lenses weares in a young population

Abstract:

Meibomian gland dysfunction (MGD) is a very common cause for dry eye and contact lens drop outs [1],[2][3] . This Clinical research compares the meiboscore of contact lens wearers at a young age (min. 4 years contact lens wearers) and those who never tried to wear. Meibography is a non-contact technique visualizing the morphology and the normal function of meibomian glands [4],[5] . This study showed that there is a relation between meibomian glands loss (MGL) and contact lens wear.

Purpose:

This clinical study recorded the meibomian glands integrity and the possible score-loss in a young population wearing contact lenses. There was also a comparison between contact lens and non-contact lenses wears. The upper and lower eyelid were examined by using a corneal topographer CSO Modi 2. The research was carried out at the University of West Attica from January to June 2019.

Method:

80 volunteers participated, all the subjects selected had no obvious ophthalmological symptoms, aged 19 to 22 years (mean age 20.9 ±1,1 years). From the total of 80 subjects, 40 were contact lens users, while the remaining 40 weren't. Subjects with history of allergies, ocular or systemic disease, users of eye- drops for any reason were excluded. The images were analyzed with Phoenix software. The area of loss was measured by identifying the missing meibomian gland area and its relation to the total area expressed as an MGL percentage. For each eyelid (upper and lower) we had therefore (meiboscore) results as follows [4] :

- *Grade 0 when we had no loss*
- *Grade 1 when the loss was less than 35%,*
- *Grade 2 when the loss was from 35% to 67% and*
- *Grade 3 when the loss was greater than 67%.*

Figure 1. Meibography of the upper and lower lid [4]

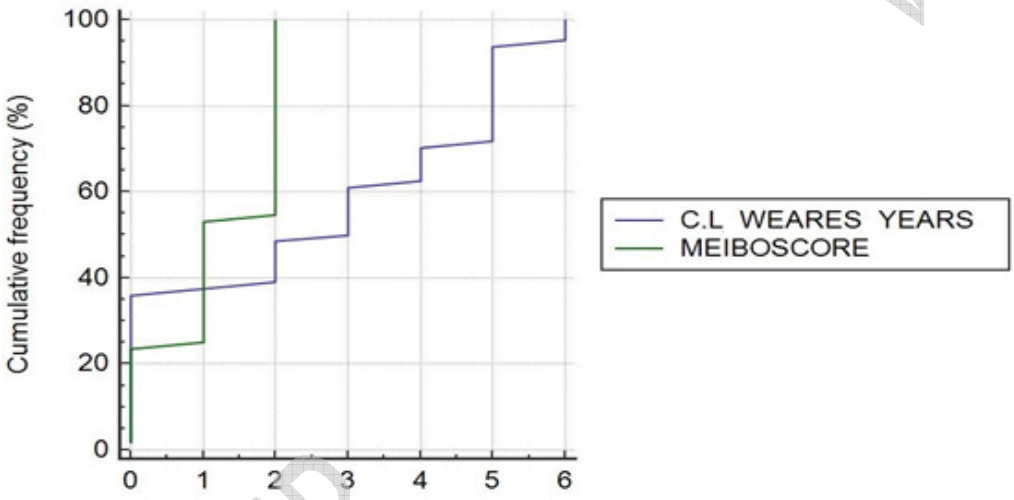

Figure 2. Correlation of meiboscore with years of contact lens wear

Results:

The correlation of meiboscore with years of contact lens was presented. We observe that there seems to be a small but positive correlation, as the total period of contact lenses increases, and meiboscore increases. In addition, cumulative frequency % showed this slight increase in meiboscore, as well as increased contact lens use time. It is noteworthy that about 38% of subjects wearing contact lenses showed meiboscore 1 after their first year of use, with a likely upward trend.

Concerning MGL, Paired T-tests were conducted in comparison of meiboscore with and without contact lens wear.

Chart 1: Without CL the statistics were

Arithmetic mean: ***1,23*** **MGL**

95% Confidence for the mean: ***1,03*** **to** ***1,43***

Variance: ***0,6585***

Standard deviation: ***0,8115***

Standard error of mean: ***0,1014***

Chart 2: With C.L. the statistics were

Arithmetic mean: ***2,53*** **MGL**

95% Confidence for the mean: ***1,98*** **to** ***3,08***

Variance: ***4,8562***

Standard deviation: ***2,2037***

Standard error of mean: ***0,2735***

Chart 3: Paired T-tests between the two population, showed

Mean difference in MGL : ***1,2969***

Standard deviation of differences: ***1,5500***

Standard error of mean differences: ***0,1938***

Conclusion:

We observed, that while people who did not wear contact lenses had MGL near the 5% range, MGL ranged from about 10% to 31% for C.L. users. In addition, it seems that as the total time of wearing contact lenses increased, MGL as well as meiboscore increased.

References

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