THE SAMPLE ERROR OF THE SPECULAR MICROSCOPY EXAMINATIONS AND THEIR RELIABILITY INDEXES

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Nowadays in many publications and ophthalmological routine, it is possible identify the sampling error contained in endothelial examinations. We must warn the ophthalmology because many surgical techniques and optical devices with ophthalmological purpose need endothelial safety, and more, the correlated studies need much more attention to it, so that they have the lowest possible sampling error as possible, representing the endothelium of the corneas as real as possible. It is also known that by using a specific statistical test on numbers that represent the endothelial cell density, its outcome may or may not be significant, but the problem occurs before using it, in case the results of the examinations included in the methodology of the study have major sample errors and consequently, not representing the reality of the cornea in the examination. This problem is demonstrated with the utilization of specular microscopes in different studies, when considering examinations with all the cells from a single endothelial image. The use of indexes of reliability for specular microscopy or confocal examination may be the solution:
1. Reliability index relative to the cell number counted during the examination - counted cell number versus calculated sample size
2. Reliability index relative to the sample error - planned sample error versus calculated sample error”

These indexes of reliability are useful tools and therefore should be used, whether included or not included, inside the specular microscopes softwares, to minimize the sampling error of the examinations and improve the repeatability of all results of the specular microscopy.