CATARACT SURGERY EFFECTS ON PHOTOSTRESS RECOVERY TIME AND CONTRAST SENSITIVITY

Authors: Perez–Carrasco MJ; Sanchez-Ramos C, Moral-Martinez MI, Langa-Moraga A; PueLL MC, Siliero M

School of Optic and Optometry, Complutense University of Madrid (Spain)


Introduction

Over the last century, the number of people over the age of 65 years has tripled [1]. In this particular age group, the most common refractive surgery procedure is cataract surgery. The use of non-invasive psychophysical tests (e.g. photostress recovery time (PSRT)) for the early detection of visual diseases and establishing the outcome of surgery (e.g. cataract surgery) is particularly important in elderly subjects.

Since 1967, the PSRT has been used to determine the time needed for the pigment levels in the photoreceptors to recover following blue photostimulation [2–4].

The main aim of our study was to establish the effects of cataract surgery on:

- the capacity to recover vision after a period of photostress
- the loss of visual acuity produced by a reduction in luminance
- contrast sensitivity with and without glare.
- disability glare

Methods

Sample

1103 subjects:
- 132 women, 971 men (Figure 1)
- Age 50 to 90 years (mean 68 ± 7 years)
- Cataract surgery (Figure 2)
- Cataract operated subjects (C1): 121 (11.03%; 71 years)
- Non-cataract operated subjects (C2): 982 (89%; 67 years)

Materials

Ergovisor® (Exelix) (Figure 3):
- Recovery times after exposure to a glare source for 10s
- Photopic (100 cd/m²) and mesopic (2 cd/m²) visual acuity
- Complete anamnesis

Results

The mean photostress recovery time (PSRT) for the entire population was 69.42 ± 25.84s. Recovery times for the C1 (cataract operated subjects) and C2 (non-cataract operated subjects) groups were 73 ± 35s and 68 ± 14s, respectively (P<0.05) (Figure 10).

Conclusions

In our study population, cataract surgery had no effects on the photostress recovery time, the visual acuity loss produced by a drop in luminance, or disability glare.

Cataract surgery did, however, show a significant negative effect on contrast sensitivity with glare for all stimulus sizes and without glare for intermediate target sizes.

Acknowledgements

This study was supported by a formal agreement between the Complutense University of Madrid and the Instituto Marpe-Seguridad Vital - Fundacion Marpe.

References