Introduction

The primary goal of cataract surgery is improvement of best corrected visual acuity. Standard bilateral monofocal implants corrected for distance, however, do not correct for near vision. Therefore, patients who have had bilateral monofocal implants corrected for distance will still require correction (spectacles or contact lenses) for near visual tasks.

Blended vision is essentially modified monovision, where the near vision eye is corrected for intermediate distance rather than near. Potential advantages of blended vision include less dependence on glasses for near vision when compared to bilateral monofocal lenses corrected for distance. Good intermediate vision, greater tolerance than monovision, avoidance of side effects commonly associated with multifocal lenses such as glare, halos, and decreased contrast sensitivity, and greater affordability than multifocal lenses.

With an increasing demand for spectacle independence, modern day cataract surgery has evolved into an essentially refractive procedure. Multifocal intraocular lenses, accommodating intraocular lenses, and monovision are utilized to meet the high expectations of today’s cataract patients. Monovision following cataract surgery can be achieved through contact lenses, refractive procedures such as LASIK, or through adjusting the intraocular lens implantation. Targeting monovision typically involves correcting the dominant eye for distance and the non-dominant eye for near with -1.5 to -2.0 dioptries of residual myopia.

Limitations of multifocal lenses include glare, halo, and decreased contrast sensitivity.

There have been many comparative studies of monofocal and multifocal lenses which examined a variety of outcomes including best uncorrected and corrected distance and near visual acuity, contrast sensitivity, stereopsis, spectacle independence, and vision related quality of life measures.

There were many comparative studies of monofocal and multifocal lenses which examined a variety of outcomes including best uncorrected and corrected distance and near visual acuity, contrast sensitivity, stereopsis, spectacle independence, and vision related quality of life measures. One study by Chen, Alebra, and Chen compared a “blended vision” target using bilateral monofocal lenses with bilateral multifocal lenses for spectacle independence after cataract surgery. They concluded that “blended vision” could be a good alternative for spectacle independence.

Objectives

This study investigated whether a “blended vision” or “mini-monovision” approach following bilateral cataract surgery with monofocal intraocular lens implantation may be offered as an acceptable alternative to standard monofocal or multifocal lens implantation.

Methods

This multicenter, retrospective study compared three groups. Group 1 included patients who had standard bilateral cataract surgery with monofocal implants corrected for distance in each eye. Group 2 included patients who had bilateral cataract surgery with monofocal implants corrected for “blended vision.” Blended vision was defined as modified monovision where the near vision eye is corrected for intermediate distance with -0.75 to -1.25 dioptries of residual myopia (spherical equivalent), and the other eye is corrected for distance vision. Patients with any other known cause of decreased vision were excluded from this study. All patients completed the National Eye Institute Refractive Error Quality of Life Instrument-42 (NEI-RQL-42) which evaluates vision related quality of life, including dependence on spectacles. Group 3 was comprised of patients from published data who received bilateral ReSTOR implants, who completed the same NEI-RQL-42 questionnaire. Study patients (Groups 1 and 2) were identified from the following four Chicago institutions: Loyola University Medical Center, the Wheaton Eye Clinic, the University of Chicago, and Northshore University Health Systems.

Results

Of the 53 patients surveyed, 15 subjects with blended vision and 13 control patients completed the questionnaire. There was no statistical significance between the subset mean scores of the NEI-RQL-42 questionnaire for the blended vision group and the control group. However, the blended vision group had higher scores (higher satisfaction) in 7 out of the 13 subsets, most notably in “near vision” and “dependence on correction.” The blended vision group also had comparable mean subset scores to the ReSTOR group. Two notable exceptions included the “glare” subset in which the blended group had a notably higher mean subset score than the ReSTOR group and “dependence on correction” in which the blended vision group had a notably lower mean score than the ReSTOR group.

Conclusion

Targeting a “blended vision” outcome following bilateral monofocal intraocular lens implantation may be an acceptable alternative to multifocal implants for patients seeking a level of vision related quality of life comparable to patients with ReSTOR implants, but who would not mind having some level of dependence on spectacle correction. These blended vision patients would also have the advantage of avoiding the potential problem of glare. A “blended vision” outcome may also be an acceptable alternative to standard multifocal implants corrected for distance for patients who desire less dependence on near correction and who enjoy a comparable, if not higher, vision related quality of life than patients with standard monofocal implants corrected for distance. A larger study comparing these groups may unmask a statistical significance which this study did not. It is important to discuss each patient’s needs and expectations before choosing the type of intraocular lens and the refractive goal of the cataract surgery.

References