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Juvenile rabbit animal model of lensectomy to evaluate therapeutic interventions for postoperative inflammation and fibrosis

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One of the most common pediatric intraocular surgeries is for congenital cataract. Left untreated, visual axis opacification resulting from a cataract can lead to deprivational amblyopia and potentially a lifetime of visual impairment. In general, the early treatment of a visually significant cataract leads to a better visual outcome. Complications of pediatric cataract surgery include obscuration of the visual axis from membrane formation, synechiae, correctopia, retinal detachment, high intraocular pressure, resulting in the potential need for additional surgery. The Infant Aphakia Treatment Study found in children up to age 6 months old treated with an intraocular lens implant compared to the children left aphakic, there was a higher rate of additional surgeriesdue to these complications, resulting in a higher cost. Because of the high risk of complications if a cataract is removed in an infant, an intraocular lens is typically not inserted.

Rabbits are used as a model of juvenile lensectomy because the anterior chamber is anatomically similar to that of the human eye and they have a robust response to lens extraction surgery that may be similar to children. We performed a systematic evaluation of the post operative course of a juvenile rabbit animal model after lensectomy. Objective and quantifiable postoperative measures are used, allowing us to compare the effect of pharmacologic interventions. We describe studies performed in the juvenile rabbit model with and without implantation of an intraocular lens implant. We correlate findings seen in rabbits with potential future applications to humans.

Biography

Iris Kassem earned her MD and Ph.D. degrees from Stony Brook University in 2006. She completed her residency in ophthalmology at North Shore-Long Island Jewish Health System followed by a fellowship in pediatric ophthalmology and strabismus at the University of Illinois at Chicago Eye and Ear Infirmary in 2011. She stayed at the Illinois Eye and Ear Infirmary as an Assistant Professor under the NIH/NEI K12 Independent Clinical Vision Scientist Development Program. These studies are supported from a grant by the Knights Templar Eye Foundation and NIH/NEI grant EY021475.

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