

## **Clinical Outcomes of Toric Implantable Collamer Lens (T-ICL) and Toric Implantable Phakic Contact Lens (IPCL) for Correction of High Myopia with Astigmatism: Comparative Study**

**Authors :** Mohamed Salah El-Din Mahmoud, Heba Radi Atta Allah

**Abstract :** Background: Our study assesses the safety profile and efficacy of toric Implantable Collamer Lens (T-ICL) and toric implantable phakic contact lens (IPCL) for the correction of high myopia with astigmatism. Methods: A prospective interventional randomized comparative study included 60 myopic eyes divided into 2 groups, group A including 30 eyes that were implanted with T-ICL, and group B including 30 eyes that were implanted with toric IPCL. The refractive results, visual acuity, corneal endothelial cell count, and intraocular pressure (IOP) were evaluated at baseline and at 1, 6, and 9 months post-surgery. Any complications either during or after surgery were assessed. Results: A significant reduction in both spherical and cylindrical refractive errors with good predictability was reported in both groups compared with preoperative values. Regarding the predictability, In T-ICL group (A), the median spherical and cylindrical errors were significantly improved from (-10 D & -4.5 D) pre-operatively to (-0.25 D & -0.3 D) at the end of 9 months follow up period. Similarly, in the toric IPCL group (B), the median spherical and cylindrical errors were significantly improved from (-11 D & -4.5 D) pre-operatively to (-0.25 D & -0.3 D) at the end of 9 months follow up period. A statistically significant improvement of UCDVA at 9 months postoperatively was found in both groups, as median preoperative Log Mar UCDVA was 1.1 and 1.3 in groups A and B respectively, which was significantly improved to 0.2 in both groups at the end of follow-up period. Regarding IOP, no significant difference was found between both groups, either pre-operatively or during the postoperative period. Regarding the endothelial count, no significant differences were found during the pre-operative and postoperative follow-up periods between the two groups. Fortunately, no intra or postoperative complications as cataract, keratitis or lens decentration had occurred. Conclusions: Toric IPCL is a suitable alternative to T-ICL for the management of high myopia with astigmatism, especially in developing countries, as it is cheaper and easier for implantation than T-ICL. However, data over longer follow-up periods are needed to confirm its safety and stability.

**Keywords :** T-ICL, Toric IPCL, IOP, corneal endothelium

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