CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187
http://doi.org/10.5281/zenodo.4441607

Avalable online at: http://www.iajps.com *Research Article*

RESULT OF CONTRIBUTOR IMPLANT EXCELLENCE ON MEDICAL CONSEQUENCES AFTER PIERCING ORGAN TRANSPLANT FOR ASTIGMATISM

[1]Dr Kiran Shahzadi, [2]Dr Husna Jamil, [3]Dr. Ehsan Ramzan
[1]AIMTH Sialkot, [2]Tehsil Headquarters Hospital, Taxila, [3]Mayo Hospital Lahore

Article Received: November 2020 **Accepted:** December 2020 **Published:** January 2021

Abstract:
Aim: *The aim of this subject is to assess the effect of contributor and eye bank features on implant rating and medical consequences after piercing organ transplant (PK) in the astigmatism.*
Place and Duration: *From December 2016 to November 2019, in the Eye Unit-1 of Sir Ganga Ram Hospital, Lahore for 3 yrs duration.*
Methods: *Post-operative consequences involved visual refractive error, acuity, suture complications, epithelial problems, transplant transparency and transplant rejection. In the multivariate regression analysis, the correlation among contributor and eye bank features, post-operative consequences and implant excellence was assessed. 252 keratoconic PK eyes were used in this retrospective interventional case series. Contributor data include age and gender, reason of death, stromal and epithelial status, death-to-preservation time, time of surgical procedure, morphology, transplant classification and endothelial cell density (ECD).*
Consequences: *Death-to-preservation time was suggestively related with the incidence of stromal cloudiness ($P < 0.001$) and implant epithelial sloughing ($P = 0.005$). The regular age of contributor and recipient was 26.3 ± 8.7 and 29.5 ± 10.0 yrs, and the 66.9 ± 38.6 months was the mean follow-up time, correspondingly. The occurrence of defects of epithelium = on the 1st day after surgical procedure was suggestively correlated with the death-to-preservation time ($p = 0.004$). The contributor's age suggestively prejudiced endothelial cell density ($P = 0.02$), hexagonicity ($P = 0.01$) and mean cell area ($P = 0.06$). Post-operative refractive and visual consequences, survival and transplant complications were not associated with any ocular or contributor factor. On the first post-operative day, implant stromal edema was found to be suggestively related with implant epithelial sloughing ($P <0.001$).*
Conclusion: *Though, the longstanding consequence on transplant complications, survival and medical result were negligible. Eye bank and contributor variables influenced contributor corneal excellence and early post-operative course.*
Keywords: *Piercing organ transplant; Postoperative consequences, contributor excellence; astigmatism.*

Corresponding author:
Dr. Kiran Shahzadi,
AIMTH Sialkot.

QR code

Please cite this article in press Kiran Shahzadi et al, ***Result Of Contributor Implant Excellence On Medical Consequences After Piercing Organ Transplant For Astigmatism.,*** *Indo Am. J. P. Sci, 2021; 08(1).*

INTRODUCTION:

PK surgeons prefer a transplant of a qualitative, excellent excellence contributor corneal tissue that provides endothelial cells that are viable. Piercing organ transplant is an operating method in which the entire viscosity of the recipient's cornea is swapped by contributor tissue.

The evidence that currently sets minimum acceptable contributor conditions for corneal transplantation is insufficient. Local and systemic diseases, Age, post-traumatic injury or surgical procedure, reason of death, storage factors (primarily storage method), time among tissue and protection, and period of tissue protection may affect the ultimate value of the cornea. Contributor age and eye bank variables, reason of death, time interlude from expiry to enucleating and protection, retention time, type of memory carrier and endothelial cell transplant (ECD), and post-transplant corneal compatibility will help determine eye bank standards. Eye Bank America Human corneal transplant standards, endothelial cell limits, contributor age upper and lower limits, death compartment protection, extortion or recognition of an eye excision bank. This study examined the impact of contributor and eye bank aspects on the adequacy of corneal transplantation and determined whether any of these contributor aspects affected medical result, implant survival and complications after PK. A large group of keratoconic eyes. It is extremely important to determine the appropriate criteria for corneal transplantation with these eye bank and contributor parameters and the cor-relation between contributor parameters and post-transplant consequences.

METHODS:

The fission lamp (stromal thinning, corneal ectasia, Vogt stretch marks and Fleischer ring) and astigmatism were diagnosed and confirmed by conventional topography as determined by keratometry. Records of victims with corneal astigmatism were reviewed. In this comparative study, demographic data, best-corrected visual acuity (B-C-V-A) and refraction, retrospective time, contributor features and the number of transplant rejection episodes, clarity were analyzed. Participation principles also obligatory a least observation period of 1 year. In addition, post-operative complications such as epithelial problems, permanent epithelial defects and suture complications, implant failure and implant rejection attacks were observed. Coverage criteria included poor visual acuity with correction for vision, gas permeable contact lenses (RGP), hard intolerance (RGP) or moderate astigmatism (mean keratometry 47-52 D) (mean keratometry> 52 D or unmeasured keratometry). Victims whose observation has disappeared were omitted from the analysis of data collected. Elimination criteria involved the coexistence of other ocular pathologies such as spring kerato conjunctivitis, cataracts, glaucoma and retinal disorders or lack of relevant contributor information.
Postoperative consequences included U-C-V-A, B-C-V-A, mean keratometry, keratometric astigmatism and refraction were determined during the last examination of follow-up when no sutures remained. The Ethics Committee approved the use of victim data. Uncorrected preoperative visual acuity (U-C-V-A), conventional corneal topography (TMS-1 topographic modeling system, version 1.61), dilated fundus examination, Uncorrected preoperative visual acuity (U-C-V-A), open refraction (if possible), full prescription glasses, B-C-V-A.

Research of the contributor and exams:

Prerequisites for contributor cornea did not include medical or social factors, infectious or structural contraindications, or turbidity or injury from previous studies that are thought to adversely affect contributor corneas. Good or excellent excellence contributor corneas were purchased from the Eye Bank. A general slit lamp and bio-microscopy study was performed to classify them all according to pre-defined guidelines. Contributor-recipient matching was not performed for ABO / Rh age and blood group. Slit lamp, protection time <48 hours and negative serological consequences.

Eye Bank data in wet rooms include contributor sex and age, reason of expiry, retention time (hours), operation storage time (days), and transport classification. Ocular epithelial, stroma, ECD and contributor morphology assessments were only available for 99 (39.4%) implants. Corneas were stored at 4 ° C and corneal nodules (n = 206, 81.7%) in Optisol medium (Optisol-GS protector; Chiron Vision, Irvine, California) (n = 46, 18, 3%).

The condition of the contributor epithelium is classified as permanent and separate. The time of death for protection was divided into 2 intervals (<24 hours and 24-48 hours) for statistical analysis. The contributor frame status has been assigned as light or cloudy. Before preserving the central corneal endothelium, it was photographed under a mirror microscope (Konato Eye Bank Keratoanalyzer, Hyogo, Japan). The severity of epithelial detachment was rated as benign (less than a third of the implant epithelial defect), moderate (less than two-thirds of the implant epithelial defect) and severe (less than two-thirds of the implant epithelial defect). The cornea excellence from the contributor used for transplantation was assessed as good, very good or excellent according to the assessment of the slit lamp of all layers of the cornea. ECD, mean endothelial cell area, co-efficient of endothelial cell variation, and percentage of hexagonal cells were calculated from mirror images.

Surgical technique:
Intraoperative keratoscopy was performed to adjust the suture tension. A sole experienced anterior segment surgeon (MAJ) performed all operations under general anesthesia using the techniques described above.

Postoperative course:
After using fluorescein, the corneal surface was examined carefully and defects of epithelial were observed. Victims were inspected 1 day after surgical procedure and daily until epithelial healing was completed. Epithelial status and implant clarity were observed at each visit.

Keratometric astigmatism was reduced by selective removal of sutures after cutting 3 months after surgical procedure and correction of continuous suture tension. At 1, 3, 6 and 12 months; follow-up examinations were performed after minimum three months after complete elimination of the suture and every six months. The remaining sutures were left in place, unless there were complications related to the suture, such as abscesses, loosening or vascularization of the suture channel. Selective removal of intermittent sutures was done sequentially, starting with tight sutures (determined on the basis of keratometric readings) and continued until the permissible amount of astigmatism was obtained. Reversal of edema following corticosteroid administration helped distinguish implant rejection from endothelial decompensating in cases of implant edema without KP or anterior chamber reaction. The following factors identified implant rejection reactions: the presence of an epithelial rejection line, the presence of sub-epithelial infiltration, the presence of reactive or non-reactive corneal deposits (KP) in the anterior chamber, and the reaction of removal of the implant or anterior chamber with or without KP. Transplant failure was defined as irreversible loss of implant clarity for any reason, including persistent epithelial defects, implant rejection, or transplant turbidity / vascularization. Betamethasone and 0.1% systemic prednisolone topical eye drops were used to treat acute rejection reactions in corneal transplants.

Statistical analysis:
Usual distribution of continuous variables was confirmed using the Q-Q graph and the Kolmogorov-Smirnov test. Statistics was examined using SPSS 21. Pearson's correlation co-efficient evaluated the relationship among usually distributed continuous variables, and Spearman's correlation was used for abnormal variables. Preoperative and postoperative visual and refractive consequences were constantly compared with normal and abnormal variables using a suitably Wilcoxon rank test and paired t test. This analysis includes logistic regression of binary and sequential variables and multiple regression of continuous variables. A multivariate analysis was achieved involving statistically significant variables at one-dimensional level ($P < 0.05$). Less than 0.05 P value was taken substantial. All reported P values are two-sided. In the multivariate analysis, only statistically significant correlations were noted.

CONSEQUENCES:

Functions of the contributor and recipient:
The regular age of the recipient was 29.8 ± 10.0 (range, 13-62) yrs, and the mean follow-up was 66.8 ± 38.7 (range, 12-184) months. A total of 252 consecutive eyes (126 on the right) of 226 (165 men) victims affected by corneal keratosis received PK during the study period. Reasons of contributor death were numerous injuries in 68.6%, cardiovascular diseases in 8.6%, intoxication in 8.4%, drowning in 6.8%, hanging in 2.7%, internal diseases in 1.4% and other reasons in 3.9%. Crates the maximum storage time is 5 days in an optisol environment and 2 days in wet rooms. Contributor statistics are given in Table 1. A total of 252 buttons from 252 corpses were collected, including 223 male and 29 female contributors with an regular age of 26.2 ± 8.8 (range, 7-60) yrs.

Table 1. Data related to contributor corneas

Implant rating (%) Excellent	50 (19.5)
Very good	177 (706)
Good	25 (9.5)
Epithelial defects* (%) No	33 (33.4)
Preservation-to-transplantation time (days)	1.2±1.1 (0-5)
Death-to-preservation time (%) <24 h	79 (31.4)

24-48 h	173 (68.8)
Cloudiness (edema)	17 (17.3)
Endothelial cell* Density (cells/mm^2)	3116.9±330.4 (2192-4149)
Mean cell area (μm^2)	322.4±39.0 (241-456)
Coefficient of variation of cell area	34.3±4.4(22-42)
Hexagonality (%)	57.6±10.1 (38.0-82.0)
<30%	40 (40.5)
30-60%	11 (11.2)
>60%	15 (15.3)
Stromal clarity* (%) Clear	82 (82.9)

Visual and refractive consequences:
The mean pre-operative keratometry was 55.05 ± 3.14 D (range 46.0-59.5 D) and fell to 45.42 ± 2.54 D (range 38.75-56.00 D) after surgical procedure (P < 0.001). The mean pre-operative U-C-V-A was 1.53 ± 0.39 (range 0.4-2.60) logMAR, and in the last study was 0.54 ± 0.42 (range 0.05-2.90) logMAR (p <0.001). B-C-V-A preoperative mean was 1.34 ± 0.54 (0.10-2.60) logMAR and increased to 0.17 ± 0.13 (range 0-1.30) logMAR in the last episode (P <0.001). After surgical procedure, these numbers dropped to -2.90 ± 3.04 D, respectively (P <0.001) and 3.98 ± 2.05 D (P = 0.01). The mean pre-operative equivalent global refractive error and keratometric astigmatism were -11.84 ± 4.45 D and 5.05 ± 3.26 D., respectively.

Post-operative course and complications:
Healing of the epithelium was completed for 52 eyes (20.6%) within 1-2 days after surgical procedure. Eighty (71.4%) eyes had epithelial defect on the 1st day. The epithelial disorder resolved after 5.4 ± 5.8 (range 1-38) days. On postoperative day 1, a total of 201 (79.8%) implants were opened, and the remaining implants showed a degree of stromal edema, which resolved after 4.6 ± 3.9 days (1-22 days). Healing of epithelial cells lasted 3-7 days in 97 (38.5%) eyes. Healing of soft contact lenses (n = 11) or transient hyperemia (n = 4) helped complete healing of the epithelium and the transplant failed due to epithelial disorders.

Suture complications in 76 eyes (30.2%) and early or tear sutures (n = 66), suture vascularization (n = 6) and suture abscesses (n = 16). The mean time from transplant to first suture removal was 12.2 ± 9.3 months and the time from transplant to suture removal was 17.8 ± 8.6 months. In general, at least one implant rejection attack occurred in 97 (38.5%) eyes, including epithelium (n = 3), epithelium (n = 30), endothelium (n = 40), and endothelium and endothelium (n = 40) . n = 24) rejection. The abscess vascular system and sterile vascular sutures were successfully treated with topical corticosteroids and / or sutures. Two or more transplant rejection cases occurred in forty (15.9%) eyes. Frequent topical steroids reversed rejection, and all eyes restored visual acuity just before refractive attack. The time from transplant to the first implant reduction period was 9.8 ± 16.8 (range 1-115) months. The external vascularization of the implant, which did not interfere with visual acuity, was observed with four eyes. In a recent follow-up study, 248 eyes (98.4%) remained open.

Associations:
Age of the ECD contributor (r = -0.27, P = 0.03, β = -8.8 [95% CI: -17.3 to -0.4]) and hexagonal (r = -0.34, P = 0.01, β = 0.50.58 [95% CI: -0.86 to -0.17]). Time of death for behavior had a significant positive association with implant epithelial separation (r = 0.27, p = 0.005, OR = 3.62 [95% CI: 1.30-10.08]) and stroma turbidity (r = 0) . , 43). P <0.001, OR = 10.0 [95% Cl: 3.0-33,3]).

showed significant correlation with epithelial implant separation (r = 0.27, p = 0.004, OR = 2.90 [95% CI: 1.24–6.78]). Only the contributor's age was closely related to the transplant result (r = -0.17, p = 0.05, OR = 0.97 [95% CI: 0.95-0.98]). On the first postoperative day, implant stromal edema was significantly associated with implant epithelial detachment (r = 0.42, P <0.001, OR = 0.05 [95% CI: 0.006-0.41]). Structural transplant turbidity (r = 0.24, p = 0.03, β = 4.39 [95% CI: 0.35–8.45]) affected the time interval from transplant to complete healing of the epithelium.

Postoperative B-C-V-A and refractive consequences were not significantly associated with contributor or eye bank variables. In a recent follow-up study, tarpafili bandages or contact lenses, suture complications, implant rejection attacks, and permanent epithelial defects requiring transplant transparency were not associated with contributor or eye factors.

DISCUSSION:

Our findings have shown that long-term protection against death increases the frequency of epithelial detachment and stromal edema. This study examined the impact of contributor and eye bank traits on the value of transplants used in PK.

Most previous studies assessing the impact of contributor features and eye bank variables on ECD have shown that contributor age and time interval in organ culture are major variables affecting contributor value. transmitter. endothelium Gavrilov et al. In addition, contributor age negatively affected ECD and morphology. Other factors, such as contributor sex, reason of death, and retention time, did not show a significant association with endothelial cell traits. A corneal contributor study showed a negative correlation among contributor ECD and age. The percentage of corneas grown in organs unsuitable for PK due to insufficient endothelium increases from 40% in contributors older than 80 to 13% in young contributors. ECD rates less than 2500 cells / mm² increased with longer retention times and contributor age. Armitage et al. In organ culture, contributor age and retention time were the main variables affecting PC endothelium benefit.

One study measured endothelial cell loss during conservation in organ culture. Increasing the intervals from enucleation to resection of the corneal disc also increased the likelihood of ECD <2500 cells / mm², but the overall effect is small and substantial only for intervals> 18 hours. Bereason these parameters were measured just before tissue preservation in this study, we were unable to assess the effect of ECD retention time and implant excellence. Contributor age, sex, posthumous deviation and reason of death did not significantly correlate with the % of endothelial cell loss. Though, shelf life was significantly correlated with 0.07% cell loss per storage day.

From contributors Vaccine. Many studies have shown that the technique and time of contributor age, reason of death, contributor protection, and morphometric and pre-operative measurements of morphometric and ECD (coefficient of variation and hexagonal) do not affect the total failure. Though, one study has shown that pre-operative risk aspects for the development of late endothelial failure include low ECD and older contributors. In contrast, the consequences of this study show that contributor parameters will not significantly affect implant survival as long as the ECD is higher than the minimum (> 2000 cells / mm2) used during corneal transplantation. The writers of the corneal contributor study noticed that transplants from contributors aged 66–75 who meet the criteria for compliance with their studies had a 5-year survival rate comparable to young contributors. Similarly, we found that contributor tissue features did not significantly affect implant survival. Age and longer retention times of older contributors are more associated with lower ECD. However, the advanced age of the contributor was expressively associated with a decrease in implant success during long-term follow-up.

CONCLUSION:

The sample we studied was a homogeneous group with astigmatism and did not show any other comorbidities of the eye, which was sufficient to identify contributor traits that may affect postoperative consequences. In conclusion, we are investigating factors that affect contributor transplant excellence and the relationship between contributor traits and medical PC consequences. However, after meeting the minimum selection criteria set by Göz Bankas, his impact on medical consequences, complications, and implant survival is insignificant. Our consequences showed that contributor and eye bank variables affect contributor corneal excellence and early postoperative course.

REFERENCES:

1. Gediz, Feyza, Bora Yüksel, Tuncay Küsbeci, Okan Akmaz, and Ömer Kartı. "The Effect of Contributor-and Recipient-Related Factors on Corneal Implant Survival in Piercing Organ transplant." In *Seminars in ophthalmology*, vol. 34, no. 1, pp. 11-18. Taylor & Francis, 2019.
2. Feizi, Sepehr, Mohammad Ali Javadi, Nazanin Behnaz, Sadaf Fani-Hanife, and Mohammad Reza Jafarinasab. "Effect of suture removal on refraction and implant curvature after deep anterior lamellar organ transplant in victims with astigmatism." *Cornea* 37, no. 1 (2018): 39-44.
3. Tóth, Gábor, Teona Butskhrikidze, Berthold Seitz, Achim Langenbucher, Tobias Hager, Elina Akhmedova, Moatasem El-Husseiny, and Nóra Szentmáry. "Endothelial cell density and corneal implant thickness following excimer laser vs. femtosecond laser-assisted piercing organ transplant—a prospective randomized study." *Graefe's Archive for Medical and Experimental Ophthalmology* 257, no. 5 (2019): 975-981.
4. Ceylanoglu, Kübra Serbest, Bahri Aydin, and Mehmet Cuneyt Ozmen. "Comparison of medical consequences of deep anterior lamellar organ transplant and excimer laser assisted anterior lamellar organ transplant in

astigmatism." *International journal of ophthalmology* 12, no. 4 (2019): 582.
5. Khattak, Ashbala. "Five-year endothelial cell count post piercing organ transplant using internationally-transported corneal contributor tissue." *Saudi Journal of Ophthalmology* 33, no. 1 (2019): 7-11.
6. Feizi, Sepehr, Zahra Karjou, Ali Masoudi, Seyed-Mohamadmehdi Moshtaghion, and Amir A. Azari. "Peripheral Hypertrophic Subepithelial Opacities of Corneal Implants After Deep Anterior Lamellar Organ transplant." *Cornea* 39, no. 3 (2020): 271-276.
7. Iselin, Katja, Claude Kaufmann, Michael W. Belin, and Michael A. Thiel. "Astigmatism Features Used in Randomized Trials of Surgical Interventions—A Systematic Review." (2019).
8. Feizi, Sepehr, Ali Masoudi, Behrouz Rahimi, Farid Karimian, and Mohammad Ali Javadi. "Geometric properties of contributor corneas after mechanical trephination in deep anterior lamellar organ transplant." *Cornea* 38, no. 1 (2019): 35-41.
9. Yousif, Mohamed Omar, and Azza Mohamed Ahmed Said. "Contralateral eye study of refractive, topographic and aberrometric consequences after femtosecond assisted MyoRing implantation and DALK for management of astigmatism." *International journal of ophthalmology* 11, no. 10 (2018): 1621.
10. HERNÁNDEZ-QUINTELA, E. V. E. R. A. R. D. O., V. A. L. E. R. I. A. SÁNCHEZ-HUERTA, ANA MERCEDES GARCÍA-ALBISUA, and R. O. S. A. R. I. O. GULIAS-CAÑIZO. "Preoperative Evaluation of Astigmatism and Ectasia." *Refractive Surgical procedure E-Book* (2019): 170.
11. Neri, Alberto, Antonio Moramarco, Alfonso Iovieno, and Luigi Fontana. "Management of Descemet membrane's folds after deep anterior lamellar organ transplant: Descemet membrane—tucking technique." *Cornea* 38, no. 6 (2019): 772-774.
12. Kobashi, Hidenaga, Kazutaka Kamiya, and Kimiya Shimizu. "Impact of forward and backward scattering and corneal higher-order aberrations on visual acuity after piercing organ transplant." In *Seminars in ophthalmology*, vol. 33, no. 6, pp. 748-756. Taylor & Francis, 2018.
13. Liu, Mengyuan, and Jing Hong. "Risk Factors for Endothelial Decompensation after Piercing Organ transplant and Its Novel Therapeutic Strategies." *Journal of ophthalmology* 2018 (2018).
14. Khattak, Ashbala, Fouad R. Nakhli, Khaled M. Al-Arfaj, and Abdullah A. Cheema. "Comparison of consequences and complications of deep anterior lamellar organ transplant and piercing organ transplant performed in a large group of victims with astigmatism." *International ophthalmology* 38, no. 3 (2018): 985-992.
15. Feizi, Sepehr, Mohammad Ali Javadi, and Bahareh Kheiri. "Effect of astigmatism severity on medical consequences after deep anterior lamellar organ transplant." *American journal of ophthalmology* 202 (2019): 15-22.