Factors Affecting Success of Corneal Grafting : An Observational Study

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Abstract

This is an observational study of 32 corneal implantation cases performed by the researcher. It shows that Younger patients (below 60 years) show more improvement. Female patients show more improvement. Corneal dystrophy cases show more improvement followed by Keratoconus followed lastly bullous keratopathy. Donors aged below 60 years give results that are more positive. There are mild results that are more positive if the time between death and transplant is less than 5 days. Trephine size more than 7.5MM shows more improvement. Punch size of 8.25MM shows most improvement. Using General anesthesia shows more improvement.

***Keywords**: Cornea, Transplantation, Keratitis*

Introduction

Visual impairment because of corneal malady gained from different dystrophic, degenerative, irresistible, and inflammatory scatters of corneal and from optional harm of corneal to surface ailment visualization.[1].Keratoplasty of lamellar as selective prescribes methods, which replace selectively only cornea diseased layers but keeping healthy ones that ultimately cause improvement in outcomes of vision as well complications reduction.[2]

New keratoplasty endothelial and keratoplasty of anterior lamellar development techniques, has rendered outcomes of vision which of equals than those for keratoplasty penetrating, normally with complications reduced risks for keratoplasty of endothelial and keratoplasty of anterior lamellar.[3]

Corneal survival transplant data, the postoperative and preoperative identification of risk factors and the transplantation techniques effect on survival, have been largely derived from registries of corneal transplantation.[4]

The keratoplasty of anterior lamellar surgery surgical challenge is the difficulty of technique inherent at separating the stromal layers of anterior from membrane of Descemet and endothelium: nowadays, manual techniques and not easy to do, that restricted their adoption widely.[5]

Techniques of modern keratoplasty endothelial involve stripping endothelium and membrane of Descemet from the receiving stroma, and the donating tissue attached with no sutures via air tamponade use.[6]

Methodology

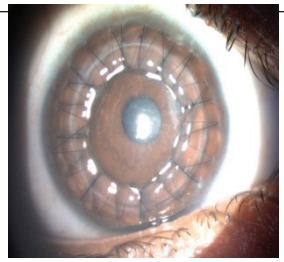
Sample size: 32 corneal implantation cases (26 were females & 6 were males) aging from (14-80 year)

Technique: Corneal implantation was performed (18 for right eye, 14 for left eye). The indications varied (bullous keratopathy, keratoconus and corneal dystrophy) 20 cases were performed under GA, while 12 were performed under LA. We used Trephine size 7.5MM in 6 patients, > 7.5 MM in 26 patients. We used Punch size 7.75MM in 8 patients, 8.00MM in 20 patients and 8.25MM in 4 patients.

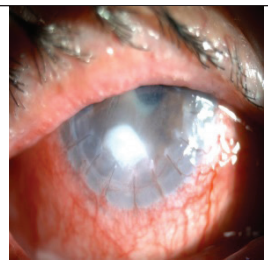
Results and Discussion

We measured both preoperative & postoperative k readings were measured. In addition, we measured average duration of clarity post op, endothelial cell density cell/mm2, BCVA 1wk, BCVA 6 month and IOP See Fig.1.

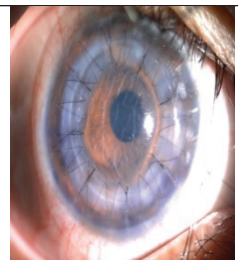
(1a) Corneal graft (PKP) during surgery



(1b) Corneal graft before surgery



(1c) Six months after grafting



(1d) After removal of stiches

Figures 1 (a-d) show the technique performed by the researcher

Source: operations performed by the researcher

Analysis: observational study of the outcome was performed. The results were analyzed by ANOVA test.

Recipient's & donor demography

Table 1: Outcome following corneal transplantation

Outcome	Recipient's Age		Recipient's sex		Donor's age	
	age >60	age <60	male	female	donors >60	donors <60
Average duration of clarity post op	3.4 days	1.8 days	1.83	2.75	2.59	1.78
Endothelial cell density cell/mm2	2461	2498	2454	2493	2379	2528
BCVA 1wk	0.18	0.17	0.20	0.17	0.20	0.16
BCVA 6 month	0.23	0.36	0.18	0.34	0.30	0.32
IOP	14.3	15.4	17.4	13.8	14.6	15.4

Indication for transplantation

Table 2 Outcome after corneal transplantation due to different indications

Outcome	bullous keratopathy	keratoconus	corneal dystrophy
Average duration of clarity post op	3.44	1.18	2
Endothelial cell density cell/mm2	2357	2542	2581
BCVA 1wk	0.16	0.17	0.10
BCVA 6 month	0.24	0.37	0.30
IOP	14.8	16.9	12.4

Time between death and transplant

Table 3 Outcome after corneal transplantation with different time between death and transplant

Outcome	1-5 days	6-10 days
Average duration of clarity post op	2.33	2.11
Endothelial cell density cell/mm2	2473	2489
BCVA 1wk	0.10	0.18
BCVA 6 month	0.22	0.35
IOP	16.8	14.9

Conclusions

1. Younger patients (below 60 years) and Female patients show more improvement compared by older patients (above 60 years)
2. Corneal dystrophy cases show more improvement followed by Keratoconus followed lastly bullous keratopathy.
3. Donors aged below 60 years, give more positive results compared by donors aged above 60 years.
4. There are mild more positive results if the time between death and transplant is less than 5 days
5. Trephine size more than 7.5MM, Punch size of 8.25MM, 8 interrupted & 8 continuous 10/0 technique and Using General anesthesia show more improvement compared by smaller sizes.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq

Conflict of Interest: Non

Funding: Self-funding

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