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Emotional Functioning after Corneal Transplantation

Dear Editor

Corneal transplantation is the most commonly performed transplant surgery and is associated with relatively high survival rates. Traditionally, objective and clinical psychophysical measures, such as visual acuity and refractive error, have been used to judge the success of keratoplasty. However, postoperative visual acuity does not clearly correlate with postoperative visual function and quality of life (1), as factors such as differing expectations, educational level and adaptational ability play an important role (2). Furthermore, the psychological and emotional impact of undergoing transplant surgery has been established in other organ transplant groups (3). Alongside the challenges of complying with immunosuppressive therapy and fears of rejection, there come emotional stresses, most notably feelings of gratitude or guilt towards the donor and feelings of responsibility for the ultimate success of the transplant (4).

Although there has been recent research assessing vision related quality of life (VQoL) and health related quality of life (HQoL) in patients undergoing penetrating keratoplasty, psychological factors and emotional functioning have not been explored in this group. Relatively unique to corneal transplantation also is the existence of two distinct groups of patients – those undergoing emergency and those undergoing elective surgery. These groups are likely to differ widely in their period of acclimatisation to visual impairment along with their expectations and understanding of surgical treatment. We hypothesised that these differences may have an impact on emotional functioning, VQoL and HQoL.

A cross-sectional case referent pilot study was conducted consisting of 60 patients who had undergone keratoplasty, 30 emergency and 30 age-matched elective patients, over the last 3 years under a single surgeon. Patients were asked to complete the following questionnaires: VF-14, a widely used VQoL instrument; Short Form (36) Health Survey (SF36), a widely used HQoL instrument including; and Transplant effects questionnaire (TXeQ), a validated transplant-specific emotional functioning assessment (5). Data were also collected regarding age, preoperative, and postoperative visual acuity in both eyes, postoperative refractive error and diagnosis.

There were a total of 36 respondents, 15 from the emergency and 21 from the elective group. The diagnoses encountered are summarised in table 1, and demographic, clinical and psychosocial outcome data for each group can be found in table 2 (available at http://aaojournal.org).

There were no statistically significant differences between preoperative or postoperative visual acuity or refractive error in the operated eye between the groups. There was a significant difference in preoperative best eye visual acuity, with the emergency group having better vision than the elective group ($p=0.027$). This may well be attributable to the differing underlying reason for surgery between the groups, with more elective patients suffering bilateral pathology.

Most interestingly, using ANCOVA to control for preoperative best eye vision, there was a significant difference between the groups on the TxEQ worry and TxEQ guilt

subscales. Elective patients felt significantly more worry (p=0.013) and significantly more guilt (p=0.012) than the emergency group. No other significant differences between the groups for any clinical or demographic factors were detected.

Severely impaired HQoL is defined as a composite HQoL score (physical component score, PCS, or mental component score, MCS on the SF-36) of 2 or more standard deviations below the general population mean. 8.3% (n=3) of the total sample (6.7% of the emergency group n=1, 9.5% of the elective group n=2) were found to be severely impaired on the MCS. 13.9% (n=5) of the total sample (13.3% of the emergency group n=2, 14.3% of the elective group n=3) were found to be severely impaired on the PCS.

This pilot study was designed to examine and compare the emotional responses and quality of life of those receiving emergency and elective corneal transplant surgery. The results indicate that elective transplant surgery is associated with a more complex emotional and psychological experience than emergency surgery. Patients worry more about the transplant and experience more guilt regarding the donor. This may be due in part to the increased time patients have to reflect on the impact of transplantation and experience of the donor, increased education about the nature of the surgery, and different expectations is therefore vital.

The study also shows that although elective and emergency surgery for corneal transplantation leads to comparable levels of HQoL, there are a proportion of patients in both groups who experience a significant impact upon their physical and mental QoL. This finding may have clinical implications as poor HQoL has been found to be independently associated with poorer outcomes such as increase in mortality (reference?).

In conclusion, this study emphasizes the value of using transplantation-specific measures sensitive enough to capture the emotional concerns and worries of transplant recipients. Further to this, it highlights the need for psychosocial interventions for patients undergoing elective corneal transplant surgery to ensure appropriate emotional adjustment takes place.

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Table 1. Diagnoses by group

Emergency	Elective
Herpes simplex keratitis 6	Fuch's dystrophy 7
Fungal keratitis 2	PBK 3
Pseudomonas keratitis 2	Keratoconus 6
Acanthamoeba keratitis 2	Old ulcer 3
Rosacea 1	Herpes zoster ophthalmicus 1
Rheumatoid arthritis melt 1	Stevens Johnson Syndrome 1
Alkali burn 1	

Table 2. Demographic, clinical and psychosocial outcome data by group

	Emergency M(S.D)	Elective M(S.D)	F
Age	56.60(19.24)	62.00(14.51)	0.92
Preoperative best vision (both eyes)	8.40(2.38)	6.38(2.73)	5.31*
Preoperative worst eye vision	3.07(1.39)	4.29(2.37)	3.18
Preoperative vision in affected eye	3.53(2.26)	4.55(2.04)	1.94
Postoperative best vision (both eyes)	8.87(2.42)	8.10(2.73)	0.74
Postoperative worst eye vision	6.40(2.64)	5.90(2.55)	0.32
Postoperative vision in affected eye	6.93(2.89)	6.75(2.83)	0.04
Change in best eye vision	0.47(2.03)	1.70(2.72)	2.17
Change in worst eye vision	3.33(2.16)	1.70(2.92)	3.32
Change in affected eye vision	3.40(2.35)	2.47(2.17)	1.42
Astigmatism	4.04(5.75)	4.21(5.25)	0.01
TxEQ worry	2.37(0.91)	3.22(0.90)	7.83*
TxEQ guilt	2.20(0.47)	2.60(0.58)	4.84*
TxEQ disclosure	1.64(0.96)	1.98(0.97)	1.08
TxEQ responsibility	3.23(1.00)	3.56(0.97)	0.97
TxEQ adherence	3.65(1.04)	4.18(0.74)	3.15
VF14	90.94(18.37)	74.39(31.52)	3.28
MCS	51.51(10.05)	47.20(12.82)	1.18
PCS	48.56(14.37)	46.06(13.31)	0.29
Physical Functional	49.73(12.61)	45.76(15.13)	0.69
Role Physical	45.40(13.06(	43.78(13.59)	0.13
Role Emotional	49.72(7.83)	43.80(11.97)	2.80
Social Functioning	46.84(6.54)	41.97(11.55)	2.16
Mental Health	52.26(10.20)	51.74(12.76)	0.02
Energy and Vitality	54.42(12.08)	47.59(10.41)	3.29
Pain	53.23(12.97)	50.29(12.63)	0.47
General Health Perception	48.24(12.96)	46.61(13.11)	0.14

M mean; S.D. standard deviation

* $p < 0.05$

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