

# CORNEAL TRANSPLANTATION: FACTORS INVOLVED

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## ABSTRACT

Corneal transplantation is an important ophthalmic procedure whose purpose is not limited to only promote visual rehabilitation who need this procedure, but also facilitate the social reintegration and into the labor market, for those who are economically active. It is still considered the most successful procedure to tissue transplants performed in humans. It can be classified in full corneal transplantation and partial corneal transplantation. The main complications involving this procedure are the rejection, secondary glaucoma and infectious keratitis. Given this context, the present study was developed with the proposal to emphasize all this importance of corneal transplantation as a means of visual recovery, as well as discuss the main care to try to avoid possible complications and subsequent graft rejection.

**KEYWORDS:** Corneal transplantation, complications of keratoplasty, keratoplasty penetrating.

## 1. INTRODUCTION

The cornea is composed of five distinct layers including epithelium, Bowman's layer, stroma, the Descemet membrane and the endothelium<sup>1</sup>. Corneal transplantation (CT) can understand the complete replacement of tissue thickness (penetrating keratoplasty) or partial (lamellar keratoplasty or profound lamellar<sup>2</sup>. The indications for transplantation can be tectonic or reconstructive, optical or functional, therapeutic or cosmetic, thus making one of the most frequently performed transplants because of the technical facilities and the number of donated organs<sup>3</sup>.

The CT keratoplasty or behaves like one of the most important procedures in ophthalmology in respect of visual recovery in an individual company<sup>4</sup>. It is also considered the most successful procedure between tissue transplants conducted on human success<sup>5</sup>. Procedural success is due to factors such as a lower risk of rejection, when compared to other transplants, due immunological aspects, and because the cornea is an avascular organ<sup>6</sup>.

The prognosis involving keratoplasty is multifactorial<sup>7,8</sup>. In the case of Penetrating Keratoplasty (PK) post-operative evolution is directly related to factors inherent

in the basic clinical ocular disease responsible for surgical indication. However, there are still unexpected post-operative complications that occur in patients with few risk factors who underwent CT uneventful<sup>7</sup>.

This work aims to report briefly the importance of cornea transplantation today as a form of visual recovery, as well as alert to possible complications that may arise and that, consequently, can lead to rejection and graft rejection.

## 2. MATERIAL AND MÉTHODS

This study is a literature review of Corneal Transplantation. For the research we used the PubMed, Lilacs and SciELO with the following keywords: Corneal transplantation, penetrating keratoplasty and complications of keratoplasty. Thus, we selected the most relevant articles of recent years, which correspond to the period 1997 to 2014. For the bibliographic citation was used Endnote X7 software for Mac.

## 3. DISCUSSION

The CT scan can be performed from different purposes, such as optical which aims at promotion of vision; tectonics in order to restore the structural integrity of the eyeball and further treatment with the intention of controlling the disease of the cornea which in turn is refractory to medical treatment<sup>9</sup>. Infectious keratitis resistant to medical treatment behaves as the main indication for therapeutic CT<sup>9</sup>.

### Complications after penetrating keratoplasty

The Post Penetrating Keratoplasty (PPK) the glaucoma represents a significant clinical problem because of their frequency of occurrence, difficulty in diagnosis, monitoring and the complexity of treatment<sup>7</sup>. Among the complications PPK presents itself as the leading cause of blindness, since it leads to graft failure and irreversible damage of the optical disc due to elevated intraocular pressure<sup>10,7</sup>.

Rejecting the CT occurs when there is recognition

and awareness of the host to donor<sup>5</sup>. This is a cellular immune response and humoral that may occur in the 14 days to 30 years after transplantation<sup>11,12</sup>. This can be epithelial, stromal, endothelial or in the three areas<sup>5</sup>. Since the primary target endothelium in graft rejection, which can lead to graft failure, lamellar keratoplasty is potentially more advantageous when compared to PK, once rejection episodes are less severe<sup>13</sup>. It is the most frequent and common complication which can lead to irreversible graft failure<sup>14</sup>. Despite advances over the years the control over the rejection of the CT is not well understood, therefore, early recognition of rejection and his aggressive treatment consist of the most effective strategy<sup>7</sup>.

There are several predisposing factors involved in transplant rejection process, including corneal vascularization is the surgeon's experience, the age of the donor patient, the diameter of the button once transplanted greater closer to the limbal vessels and therefore greater the chance of rejection, the existence of prior transplants, the presence of adhesions and an increase in intraocular pressure postoperatively<sup>5</sup>. Therefore, the incidence of rejection is associated with an indication of the presence of CT and preoperative risk factors<sup>11</sup>. It is believed that this rate is around 30%<sup>6</sup>.

Although uncommon, infectious keratitis behaves as a serious complication PPK, which leads to loss of transparency of the graft in most patients<sup>7</sup>. It is taken as true that low socioeconomic status of patients have a higher relative risk for failure CT<sup>7</sup>.

#### 4. CONCLUSION

A growing number of corneal transplant procedures have been carried out every year. However, one should be aware of the complications that can arise in order to avoid graft rejection.

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