Corneal donation process and corneal tissue quality: a cohort study

Giovanna Karinny Pereira Cruz[1], Marcos Antonio Ferreira Júnior[2], Viviane Euzébia Pereira Santos[3], Oleci Pereira Frota[2], Elen Ferraz Teston[2], Mayk Penze Cardoso[2]

1 Federal University of Paraíba
2 Federal University of Mato Grosso do Sul
3 Federal University of Rio Grande do Norte

ABSTRACT

Thesis project developed with the Doctorate Graduation Program in Nursing, Department of Nursing, Federal University of Rio Grande do Norte. Objective: to identify the predictive factors for the classification of the quality of the corneal tissue captured by the eye bank as excellent, good, regular or poor. Method: epidemiological study with a quantitative approach, by designing a cohort, longitudinal, descriptive and analytical. The research protocol is approved by the Research Ethics Committee of the Federal University of Rio Grande do Norte. The collected data will be submitted to statistical analysis in order to point out the predictive factors of the different levels of classification of the corneas captured for donation.

Descriptors: Corneal transplantation; Flaps of biological tissue; Eye; Epidemiology.

SITUATION PROBLEM AND THEIR SIGNIFICANCE

Keratoplasty is a surgical procedure subject to the risk of failure resulting from different mechanisms. Studies show that keratoplasty survival depends on several factors, many of which are not fully understood. However, it is known that the most common cause that affects transplant survival is endothelial failure. By characterizing the epidemiological and clinical profile of corneal transplants, there is the possibility of identifying and inferring possible risk factors for the different levels of success of the procedure, as well as for its survival [1-3].

In this perspective, the present study is justified in view of the need to expand the production of longitudinal research regarding the effects of factors that predict the quality of the corneal tissue captured that may interfere with the success of the transplant, in order to generate data that support the improvement of public policies, health care, the elaboration of institutional protocols and guarantee the effective and quality functioning of the corneal tissue donation-transplantation process. It is hoped that the results of this study may present a relevant scientific contribution on the theme regarding the promotion of technological development in health with the evaluation of the corneal tissue donation process and, consequently, the implementation of care that ensures safe techniques in the donation process and capture of viable corneal tissues for transplants.

HYPOTHESIS

The factors related to the donation process (capture and processing) of the corneal tissue are directly related to the quality of the corneal tissue captured for corneal transplants.

OBJECTIVES

Identify the predictive factors for the classification of corneal tissue quality as excellent, good, regular or poor, captured by the eye bank of the state of Rio Grande do Norte.

Analyze the relationship between clinical, sociodemographic and procedural variables of donors with the classification of the quality of corneal tissue collected for transplantation.

To verify the influence of the donation process factors on the quality of the corneal tissue.

METHOD

Epidemiological study with a quantitative approach, with the design of a longitudinal, descriptive and analytical cohort. Retrospective cohort study, which will address the whole process of capturing and preserving corneas by the Human Ocular Tissue Bank (*Banco de Tecidos Oculares Humanos*, BTOH) of the state of Rio Grande do Norte (RN).

The research protocol was approved by the Research Ethics Committee of the Federal University of Rio Grande do Norte, under the con-substantiated opinion No. 2,454,077, in accordance with the requirements established by Resolution No. 466, of December 12, 2012 of the National Council Ministry of Health.

For the constitution of the probabilistic sample, the corneas processed by the BTOH of RN in the period from 2005 to 2016 (N=3,707) will be considered, which after sample calculation will have 419 corneas.

Data collection started in the first half of 2018. The collected data will be organized in

spreadsheets with a database built, managed for descriptive and inferential analysis procedures. For the descriptive analysis of the data, the software Statistical Package for the Social Sciences (SPSS), version 20.0 will be used. The level of significance to be adopted will be 0.05.

The main variables under analysis will be: classification of the quality of the corneal tissue (dependent variable) with the independent variables (age of the donor, gender of the donor, race of the donor, cause of death, physiology of death, means of preservation, criteria for evaluation of cornea, time intervals between death-enucleation, death--preservation and enucleation-preservation). It is expected that the study will identify the factors inherent to the donation process that interfere with the quality of the corneal tissue, and assist nursing care for patients with indication for corneal transplantation.

REFERENCES

1. Bowling B. Kanski's clinical ophtalmology. 8.ed. Rio de Janeiro: Elsevier; 2016.

2. American Academy of Ophthalmology (AAO). Corneal Allograft Rejection and Failure. United States of America. 2017.

3. Cruz GKP, Ferreira Júnior MA. Cornea transplantation in Rio Grande do Norte: epidemiological and clinical aspects. Online Braz J Nurs [Internet]. 2016 [cited 2019 out 15];15(suppl):579-82. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/5597

PROJECT DATA

Thesis Project of the Doctorate Graduation Program in Nursing/Department of Nursing/Federal University of Rio Grande do Norte. Qualification Exam on 06/20/2017, approved.