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THE CLINICAL NEED FOR CORNEAL GRAFTS IN THE REPUBLIC OF MOLDOVA*Tatiana Tsymbalari**Transplant Agency from the Republic of Moldova***Rezumat*****Necesitatea clinică de grefe de cornee în Republica Moldova****Tatiana Țîmbalari**Agenția de Transplant din Republica Moldova*

Patologia corneei reprezintă a treia cauză de orbire la nivel mondial, după cataractă și glaucom, cu afectarea a circa 10 milioane de persoane care suferă de cecitate bilaterală. Se estimează că 12 milioane de oameni sunt în așteptarea transplantului de cornee. Doar 50 de țări acoperă necesitatea proprie de servicii de transplantologie. Majoritatea pacienților din listele de așteptare sunt din țări unde lipsește banca de transplant sau nu au acces la țesuturi donate.

Cuvinte-cheie: *greafa de cornee, transplant, patologia corneei*

Introduction. Corneal pathology is considered the third leading cause of blindness worldwide, after cataracts and glaucoma, with 10 million people with bilateral corneal blindness [1]. An estimated 12 million people are waiting for a corneal transplant. 50 countries are considered self-sufficient, almost self-sufficient or adequate for corneal transplantation [1]. Most patients on waiting lists live in countries without an eye bank or do not have routine access to donated tissues.

Global data from a 2012 study, in which the Republic of Moldova also participated, show that 184.576 corneal transplants were performed in 116 countries out of the 148 countries participating in the study [2]. According to this study, the United States had the highest transplant rate - 19.91 per 100,000 population, followed by Lebanon - 12.21 per 100,000 population and Canada - 11.7 per 100,000 population, while the median of the 116 countries analyzed was 1.91 per 100,000 population. The global study quantified the considerable deficiency of corneal graft, with only 1 cornea being available for 70 needed. As with organs, the global demand for corneal graft to be transplanted goes beyond the available supply.

Materials and methods. The research was conducted based on the information about the transplantation field of the health system, with reference to national and international data and sources. Underlying the research was the analysis of key elements in the activity of donation and

transplantation of human tissues during the years 2013 - 2019.

Results. In the Republic of Moldova, in the structure of ophthalmic morbidity, corneal pathology occupies a third place and constitutes 23% of the total number of ocular pathologies. Inflammatory processes that produce corneal ulcers, considered an ophthalmic emergency, account for 20% of cases [3].

The waiting list for corneal transplants is growing steadily, an average of 27.25 ± 9.9 patients per year, or 7.8 patients per million population. The rate of patients who received corneal transplants compared to patients enrolled in the waiting list varied depending on the actual number of donors, and was the highest in 2013 and accounted for 77%, then decreased to 11.8% in 2015, and subsequently increased to 33.8% in 2019.

During the research period, the total annual number of corneal transplants in average was of 9.5 with 9.5 grafts per million population. The rate of transplanted patients compared to patients on the waiting list averaged $36.1 \pm 11.7\%$ (10.3 patients per million population), that is, only 1 cornea available for almost 3 patients in need of a transplant. The Human Tissue Bank collected and processed an average of 46.8 ± 4.6 corneas per year from 23.2 ± 2.4 deceased donors, of which an average of 11.2 ± 3.3 (23.9%) they were destroyed for various reasons. Thus, in order to achieve 100% coverage of corneal transplant services in relation to needs, it

would be necessary to perform ≈ 26.3 corneal grafting surgeries per million population annually.

The study carried out a comparative analysis of average data on tissue transplants in the EU countries for 2018, with data from the Republic of Moldova. At the level of the EU countries, in 2018, 26.5 ophthalmic tissue transplants were performed with 48.4 grafts per million population (data provided by 21 countries with 416 million population) [4]. Therefore, the estimated annual needs for the Republic of Moldova correspond to the number of corneal grafting surgeries performed in the EU countries.

Conclusions. The study revealed that annual assessment of the degree of assurance of the health system with corneal grafts and ensuring minimum stocks in the Human Tissue Bank will cover the needs of practical medicine. This requires a complex analysis of the donation and transplantation process at the national level, the activity of the Human Tissue Bank, the morbidity of the population through various diseases that require transplantation.

Keywords: corneal graft, transplantation, corneal pathology.

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