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The impact of culture media on the endothelial viability of corneas

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Abstract

Background: The complexity of cryopreservation and its potential to damage the endothelium make it so that it is rarely used in routine eye banking, except for occasional, clinically urgent transplants, where the main objective is to save the eye. The culture medium was the method of choice in the Eye Bank.
Material and methods: The study group was divided into 3 subgroups. For penetrating keratoplasty and anterior lamellar keratoplasty, corneas taken up to 24 hours, with a number greater than 2000 endothelial cells per mm^2, are preferably used.
Results: In the first group we found: weakly edematous epithelium; thin, transparent stroma; thin Descemet's membrane; transparent endothelial layer, endothelial cell density greater than 2800 cells/mm^2. The corneas of the second group presented: edematous, but with uncompromised integrity epithelium; slightly edematous, transparent stroma; slightly folded Descemet's membrane; intact endothelial layer and an average of 2600 cells/mm^2. Corneas of the third group: evidently edematous epithelium, with exfoliations in some areas and Bowman's membrane detachment; considerable edema of stroma in all layers; pronounced folds of Descemet's membrane; interrupted endothelial layer along the outline of the folds.
Conclusions: The age of the donor and the preservation time are important factors that influence corneas in culture media and determine the state of endothelial cells. Although the number of endothelial cells usually decreases with age, there are still many corneas from donors over 80 years of age who meet the minimum criteria for transplantation.

Key words: minimum essential medium Eagle, fetal bovine serum.