Corneal Transplantation From Donors With Cancer

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Background: Acceptance criteria for corneal donation in some eye banks include cadavers with active cancer, both solid and hematological. Such acceptance is based on the fact that the cornea is an avascular tissue and metastatic dissemination is extremely unlikely. Between 30% and 40% of the total number of corneas available for transplantation may come from donors with cancer. In the last 70 years, three patients suffering from donor-recipient tumor transmission has been reported, two of the three donors had ocular masses at retrieval.

Methods: In the donor selection, in relation to cancer, cadavers with primary ocular tumors were excluded. All those dying from systemic cancer, either solid or hematological, were accepted as corneal donors with the exception of cadavers who presented macroscopic evidence of ocular infiltration. From a total of 588 corneal donors in the Sant Pau Tissue Bank (April 1999 – December 2003), 204 (34.7%) had an active malignancy or a history of malignancy. Of these, 177 had solid cancers and 27 had hematological cancers. Cancer was active in 94.7% and 64% had metastatic dissemination of their primary tumor. After enucleation, the cornea and the anterior chamber were studied with slit lamp. After removing the corneoscleral button, the rest of the eye underwent histopathological exam to rule out ocular metastatic involvement, a study of the 408 eyes from these 204 donors was performed. A total of 325 corneas (79.7%) were transplanted and recipients were followed for an average of 64.1 +/- 11.1 months (range: 30-86 months).

Results: Two eyes, one from a donor with breast adenocarcinoma and the other from a donor with chronic myeloid leukemia, had microscopic ocular infiltration. Then, the incidence of ocular metastases in the 204 donors with malignancy was 1%, 0.6% for solid cancer and 3.7% for malignant hematological disease. There was no tumor transmission in any of the 325 recipients, including the two recipients who received the cornea from the eyes with microscopic tumor infiltration.

Conclusions: The incidence of ocular metastases in corneal donors with active malignancy is very low. Donor-recipient tumor transmission through corneal transplantation is highly improbable when the eyes are free of cancer. Corneal donors with active cancer represent a high percentage of corneas viable for transplantation.

Recommendations [Original work & literature review]. Despite the exceptional possibility of donor-recipient cancer transmission through corneal transplantation, we suggest three sequential steps that should be followed in the selection of corneas for transplantation from donors with cancer: 1) eyes that present macroscopic tumor masses should be rejected; 2) the cornea and anterior chamber of the eye should be carefully evaluated by slit lamp to discard tumor infiltration; and 3) histopathological study of the eye should be performed prior to corneal transplantation and cornea should be rejected in cases of tumor cellular infiltration.