

Immune Activation Markers in Cadaver Limbal Tissue and Ex-vivo Expanded Limbal Epithelium

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Background: It is hypothesized that certain amount of antigen presenting cells are present in the normal limbus and cornea interfering in the allograft survival.

Objective: Differential expression of normal limbus and ex-vivo expanded limbal epithelial cells on human amniotic membrane needs to be evaluated in order to understand the immune status of the allograft. The evaluation of the allograft prior to limbal stem cell transplantation would enhance the prognostic value in formulating the immunosuppressive therapy protocol for the patients.

Design: Prospective study.

Setting: Stem Cell Department, Global Hospitals, Hyderabad.

Method: It was a prospective study design, where the cadaver limbal tissues were tested for the presence of immunoregulatory markers. Markers under study included CD4, CD8, CD25, CD68, HLA-DR (MHC-II) before and after ex-vivo expansion of the limbal epithelium by immunofluorescence technique.

Result: The study was carried out on 10 subjects, and 3 lymph nodes were treated as positive control. Corneoscleral rims were analyzed in three cases. Markers of immune activation such as CD4, CD8 were negative in normal and ex vivo expanded limbal epithelium, while CD25, CD68 were present occasionally. The cultivated limbal epithelium remained predominantly negative for these markers.

Conclusion: The cultivation of limbal epithelium may be a safer proposition for limbal stem cell transplantation as against the original allografting. The culture system alleviates the chance of graft rejection by way of removing the trigger factors.