

EYE AND VISION

August 21-23, 2017 | Toronto, Canada

Study design: Experimental prospective interventional study

Hala Gabr
Egypt

Purpose: to study the ability of mesenchymal cells derived from the bone marrow to help healing of corneal injuries in rabbits

Methodology: Twenty rabbits were used in this study. The corneal surface was destroyed either mechanically or chemically. Mesenchymal cells derived from the bone marrow were carried on an amniotic membrane and transplanted to the corneal surface either after being co-cultured with cells derived from the Limbus (group A rabbits) or directly without previous co-culture (group B rabbits). Flow cytometry and clonogenic assay were used to test trans-differentiation of mesenchymal cells into limbal lineage. The effect of the transplanted cells on the corneal surface was assessed clinically, microscopically, and by immunohistochemistry.

Results: Flow cytometry showed that 79±8% of co-cultured cells had acquired limbal lineage criteria, of which 59±5%

presented limbal stem cell criteria. A clinical improvement was observed in 64% of the injured eyes with a significantly better improvement in group A compared to group B animals. Involvement of the inoculated cells in the regenerative process was proved by light microscopic demonstration of tagged cells and by dual immunohistochemical staining showing simultaneous mesenchymal and epithelial staining of the implanted cells.

Conclusion: Transplantation of mesenchymal cells derived from rabbits bone marrow could improve their injured ocular surface. Those cells previously co-cultured with limbal cells showed a higher ability of promoting corneal healing.

Key words: stem cells, limbal stem cell transplantation, ocular surface disorders, co-culture, mesenchymal cell trans-differentiation.

e: halagabr@yahoo.com

 Notes: