Management of Limbal Stem Cell Deficiency

Essay

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AMT	Amniotic membrane transplantation
APECED	Autoimmune Polyglandular Endocrinopathy – Candidiasis - Ectodermal Dysplasia
BFGF	Basic fibroblast growth factor
Bid	Twice a day
BP	Blood pressure
CAMs	Cell adhesion molecules
CAU	Conjunctival autologous
CBC	Complete blood count
c-CLAL	Cadaveric conjunctival limbal allograft
CD8+	Cytotoxic T cell
CIN	Conjunctival intraepithelial neoplasia
CK	Cytokeratin
CLAU	Conjunctival-limbal autologous
CP	Cicatricial pemphigoid
CXR	Chest –x- ray
DMEM	Dulbecco's Modified Eagle Medium
EC	Endothelial cells

EGF	Epidermal growth factor
FGF	Fibroblast growth factors
HBV	Hepatitis B virus
HCV	Hepatitis c virus
HIV	Human immunodeficiency virus
HLA	Human leukocyte antigen
HML-1	Human mucosal lymphocyte antigen
IL-1	Interleukin-1
IOP	Intraocular pressure
K	Keratin
KLAL	Keratolimbal allogeneic
LFT	Liver function tests
lnr-CLAL	Living nonrelated conjunctival limbal allograft
lr-CLAL	Living-related conjunctival-limbal allogeneic
LSCD	Limbal stem cell deficiency
LSCT	Limbal stem cell transplantation
Mg	Magnesium.
MMC	Mitomycin C

MMPs	Matrix metalloproteinases
NV	New vascularization
OB	Ocular burns
OCP	Ocular cicatricial pemphigoid
PAF	Platelet activating factor
PEDF	Pigment epithelium-derived factor
PMC	Post mitotic cells
PSA	Prostate-Specific Antigen
Qd	Once a day
Qid	4 times a day
RCT	Randomized controlled trial
Sc	Stem cell
SJS	Stevens - Johnson syndrome
SSSS	Staphylococcal scalded skin syndrome
TAC	Transient amplifying cells
TDC	Terminally differentiated cells
TIMPs	Tissue inhibitors of matrix metalloproteinases
TNF	Tumor necrosis factor

TPA	Tissue plasminogen activator
UPA	Urokinase plasminogen activator
VA	Visual acuity
VEGF	Vascular endothelial growth factor
(R)-HETrE	(R)-Hydroxyeicosatrienoic acid
(TAC)	Transient amplifying cell
'3T3'	"3-day transfer, inoculum 3 x 105 cells."
5FU	5 fluorouracil

Chapter (1):
Anatomy and Physiology of Limbal Stem cells

Limbus and Stem Cell Anatomy and Function

The limbus is the anatomical transition of sclera and conjunctival epithelium into cornea and is believed to be the location of the epithelial stem cells of the cornea.At the limbus, the stratified columnar conjunctival epithelium moves to the stratified squamous epithelium of the cornea, and the vascular substantia propria of the conjunctival epithelium ends in a rich vascular limbal plexus. The vascular plexus is believed to be important in providing nutrients and oxygen to the mitotically active limbal stem cells. Additionally, the limbus may function to restrict conjunctival cells from the corneal epithelium. The stem cell population responsible for repopulation of the corneal epithelium remains poorly described.[1]

Early studies documented a centripetal movement of corneal epithelial cells from the limbus to the central cornea, suggesting that proliferating precursor cells were present at the limbus. The concept of limbal based stem cells was further supported by the observation that it was impossible to create permanent corneal epithelial defects in laboratory animals