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Assessment of the use of amniotic membrane in glycerol solution x lyophilized for reconstruction of ocular surface in rabbit model

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Purpose: To determine efficacy of lyophilized amniotic membrane (AM) for reconstruction of ocular surface in rabbit eyes **Material and Methods:** Fifteen rabbits (15 eyes) had their central cornea marked with 6.0 mm trephine under topical and systemic anesthesia. With the use a 15° blade mm the marked area was deepithelialized. The eyes were divided in three groups. The denuded corneal area was covered with: Group 1: 1:1dmme:glycerol preserved human amniotic membrane (n= 6), Group 2: lyophilized amniotic membrane (n=6), Group 3 not covered (Control Group =3) . The amniotic membrane in group 1 and 2 and the periphery of the denuded area in group 3 were secured with continuous 10-0 nylon suture. The clinical evaluation was made by a blind observer using a graduated scale for conjunctival and ciliary hyperemia, corneal neovascularization, corneal and eyelid edema and epithelialization in 1st, 7th and 30th post operative (PO) day. After the last PO day the rabbits were euthanized and their eyes were send for anatomopathologic and ultra structural analysis to evaluate inflammation, epithelialization, and basement membrane integrity. **Results:** Two eyes in group 2 had a corneal infection and were excluded from the analysis. No statistically significant differences among the three groups were found ($p > 0,05$) regarding the clinical evaluation in 1st, 7th and 30th PO days. In the transmission electron microscopy, the basement membrane in lyophilized and control was more continuous and homogeneous than in the glycerol group. **Conclusions:** The liofilization method seems to be a good option to preserve human amniotic membrane to be used in ocular surface reconstruction.