Corneal Microscopic Changes After Oxervate vs. PRP Treatment in Dry Eye Disease Patients

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Dry eye disease (DED) is increasingly understood as a disorder involving both ocular surface inflammation and corneal nerve damage. Although platelet-rich plasma (PRP) and cenegermin (Oxervate) are both emerging regenerative therapies, no previous study had directly compared their effects on corneal microstructure using in vivo confocal microscopy (IVCM). In this retrospective, masked study, I analyzed mentor-collected clinical data from 110 eyes treated with either PRP or Oxervate, measuring pre- and post-treatment changes in corneal nerve fiber density (CNFD), corneal nerve branching density (CNBD), dendritic cell density (DCD), total cell density (TCD), and nerve morphology. Both therapies improved corneal microstructure, but PRP showed broader overall benefits, including greater reductions in inflammatory markers such as DCD and TCD, larger increases in CNFD, and improved nerve morphology, while Oxervate showed its strongest effect in CNBD, consistent with its role as a targeted nerve growth factor. These findings suggest that PRP and Oxervate have distinct biological strengths and support a more personalized, biomarker-guided approach to dry eye treatment that may reduce unnecessary dual therapy and financial burden for patients.

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