

演題 白内障手術における粘弾性物質の研究

脈絡膜新生血管の発生に大きく関与する Bruch 膜の構造について

高次機能制御系 眼科学専攻 第3学年 盛 秀嗣

Purpose

To establish a new evaluation technique to detect residual ophthalmic viscosurgical devices (OVDs) and its adhesion to the corneal endothelium in phacoemulsification and aspiration (PEA) surgery.

Methods

In this study, we investigated OVDs (Viscoat[®], HealonV[®], Healon[®] and DiscoVisc[®]) by using porcine eyes. Each OVD was mixed with fluorescent conjugated dextrans to make it visible. Surgical procedures were as follows: we made a corneal side port, a continuous curvilinear capsulorhexis, and corneal tunnel incision. Each OVD was injected following these procedures. The lens was removed using single-hand phacomulsification technique. After operation, the anterior segment was isolated by equatorial incision and the tissue was frozen immediately by shimmering liquid nitrogen. Twenty micrometers thin-sliced sections were made by Cryostat from limbus to limbus by sagittal manner. Each one out of ten slides from all sectioned slides were picked up and dried naturally and were photographed by a fluorescent microscopy with cool CCD camera immediately. Using WinRoof[®] software, we measured the percentage of OVDs which cover corneal endothelium and the volume of OVD clots remaining in the anterior chamber.

Result

In regard to endothelial coating ability, Viscoat[®] showed statistically higher coverage ratio compared to Healon[®] and DicoVisc[®]. The remaining OVD in the HealonV[®] was statistically larger than that of Healon[®] and DicoVisc[®].

Conclusion

We could clearly observe the volume of remaining OVDs in the anterior chamber and how they coat corneal endothelium. These results showed that Viscoat[®] and HealonV[®] had high potential to the corneal endothelium protection during the PEA surgery.

前眼部に関する研究は以上で終了し、現在は後眼部である脈絡膜 Bruch 膜弾性板に関する研究を行っている。弾性線維の研究で広く知られている薬理学講座中邨教授のもとで、まずは弾性線維を構成する Fibrillin1, Fibulin5, LTBP2/4 の免疫染色（蛍光抗体法）を行った。全てにおいて陽性所見が得られた。今後は、これら弾性線維を構成する Fibrillin1, Fibulin5, LTBP2/4 のノックアウトマウスを用いて、様々な実験を行っていく予定である。