

论著

毛果芸香碱和布林佐胺滴眼液对兔眼表组织的影响

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摘要 目的: 探讨抗青光眼药物毛果芸香碱和布林佐胺滴眼液及各自的防腐剂三氯叔丁醇和氯化苯甲烃胺(BAC)对兔眼表组织的影响。

方法: 选取新西兰大白兔15只, 分为正常对照组(3只)、毛果芸香碱组(A组, 6只)和布林佐胺组(B组, 6只)。用药组右眼使用青光眼药物毛果芸香碱或布林佐胺滴眼液, 左眼使用对应的防腐剂三氯叔丁醇或BAC, 连续用药30 d。取球结膜组织行苏木素-伊红(HE)染色计数结膜上皮层炎症细胞数; 角膜行扫描电镜检测并进行上皮损害分级评分。

结果: 与正常对照组比较, 布林佐胺滴眼液($P < 0.01$)和防腐剂BAC($P < 0.01$)导致球结膜上皮层炎症细胞浸润增多; 毛果芸香碱滴眼液($P > 0.05$)和三氯叔丁醇($P > 0.05$)引起的球结膜炎症细胞增多不明显。布林佐胺滴眼液导致球结膜炎症细胞增加的程度较毛果芸香碱滴眼液严重($P < 0.01$)。青光眼药物和防腐剂均可导致兔角膜上皮超微结构的损伤, 表现为角膜上皮细胞六边形结构变为不规则、边界不清、细胞膜皱缩、细胞间距增宽、上皮细胞表面的微绒毛丢失、细胞空洞和暗细胞增加。布林佐胺滴眼液和BAC引起的角膜损害较毛果芸香碱滴眼液($P < 0.01$)和三氯叔丁醇明显($P < 0.05$)。各组左右两眼的球结膜炎症细胞数和角膜损害评分均无显著差异。

结论: 布林佐胺滴眼液和防腐剂BAC使用1个月后可导致兔球结膜炎症细胞增加和角膜上皮细胞损伤, 毛果芸香碱滴眼液和三氯叔丁醇主要引起角膜上皮超微结构的变化; 防腐剂是引起眼表损伤的主要原因。布林佐胺滴眼液对兔眼表的损伤较毛果芸香碱滴眼液严重。

关键词 [青光眼](#) [毛果芸香碱](#); [布林佐胺](#)

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Effects of pilocarpine and brinzolamide on rabbit ocular surface

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Abstract

AIM: To evaluate the effects of pilocarpine, brinzolamide and the preservatives of them on corneal epithelial cells and the histopathology of rabbit conjunctiva. **METHODS:** Fifteen New Zealand white rabbits weighing 1.5 kg to 2.5 kg were randomly divided into three groups. One group with three rabbits served as untreated controls. Pilocarpine 1% and brinzolamide 1% each were administered to the right eyes in one treated group, and the preservatives (chlorobutanol 0.01% in pilocarpine, benzalkonium chloride 0.01% in brinzolamide) to the left eyes. Corneal epithelial damage was evaluated by scanning electron microscopy, and conjunctival specimens were examined under light microscopy. **RESULTS:** Compared with normal controls, brinzolamide and BAC caused corneal epithelium damage and increased number of inflammatory cells in the conjunctiva, while pilocarpine and the preservative chlorobutanol mainly influenced the corneal epithelium. Brinzolamide produced significantly more damage than pilocarpine ($P < 0.01$) in corneal epithelium. In the conjunctival tissue, the number of inflammatory cells in the epithelium was significantly higher in eyes treated with brinzolamide than that with pilocarpine ($P < 0.01$).

CONCLUSION: When applied to rabbit eyes, brinzolamide, pilocarpine and the preservatives result in corneal damage and conjunctival inflammatory cell infiltration. The preservatives play a major role in the ocular surface adverse effects. Brinzolamide appears to have more influences on ocular surface compared with pilocarpine.

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