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论著

MK801 对近视视网膜NO-cGMP 信号通路的调控

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摘要： 目的：观察MK801 对豚鼠近视的调节,探讨其在近视发病机制中的作用。方法：3 周龄三色豚鼠分为6 组：A 组(正常空白对照组)、B 组(右眼遮盖3 周组)、C 组(右眼遮盖3 周+ 玻璃体腔生理盐水注射组)、D 组(右眼遮盖3 周+ 玻璃体腔注射1 ng MK801 组)、E 组(右眼遮盖3 周+ 玻璃体腔注射10 ng MK801 组)、F 组(右眼遮盖3周+ 玻璃体腔注射100 ng MK801 组)。实验前及实验3 周时对各组进行视网膜检影和A 超测眼轴,原位杂交法检测神经细胞性一氧化氮合酶(ncNOS) 的表达,放射免疫法检测cGMP 的含量,将D,E,F 组的屈光度、眼轴、ncNOS及cGMP 含量与MK801 药物浓度进行直线相关分析。结果： 玻璃体腔药物注射C,D,E,F 组遮盖眼随注射浓度的升高近视屈光度数下降,眼轴延长减慢, ncNOS 及cGMP 含量下调,与MK801 注射浓度行相关分析呈直线相关,屈光度与注射浓度呈正相关(r=0.702,P<0.05), 眼轴长度、ncNOS 表达、cGMP 表达与其呈负相关(r=-0.736,-0.637,-0.725,P<0.05)。结论： 近视豚鼠MK801 玻璃体腔注射能通过下调NO-cGMP 表达减缓近视的进展, 呈剂量依赖性。

关键词： 形觉剥夺性近视 视网膜 一氧化氮 环磷酸鸟苷 MK801

MK801 controls form-deprivation myopia by nitric oxidecyclic GMP signaling pathway in guinea pig

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Abstract: Objective: To investigate the mechanism of myopia following intravitreous injection of MK801 (dizocipine maleate) intravitreous injected. Methods: Three-week-old guinea pigs were divided into six groups: group A (control), group B (3 weeks form-deprivation in right eye), group C (3 weeks form-deprivation in right eye + saline), group D (3 weeks form-deprivation in right eye + MK801 1ng), group E (3 weeks form-deprivation in right eye + MK801 10 ng), group F (3 weeks form-deprivation in right eye + MK801 100 ng). The refraction and axial length of the eyes were measured. ncNOS was measured by hybridization in situ, and cyclic GMP (cGMP) conentrations by radioimmunochemistry. The correlation between MK801 concentration and diopter degree, axial length of the eyes, and levels of ncNOS or cyclic GMP were analyzed with linear correlation in the groups C-F. Results: Diopter degree was decreased, axial eye length was shorted and levels of ncNOS and c-GMP were decreased in groups C, D, E and F dependent on the concentration of MK801. The diopter degree had positive correlation with MK801 concentration (r=0.702, P<0.05), while the axial eye length and the levels of ncNOS and cGMP were negatively correlated (r=-0.736, -0.637, -0.725, P<0.05) Conclusion: MK801 injected into the vitreous humor can restrain myopia by down-regulated the expression of the nitric oxide-cyclic GMP signaling pathway. The effect is concentration dependent.

Keywords: form deprivation myopia retina nitric oxide cyclic GMP MK801

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