Anti-angiogenic effect of hexahydrocurcumin in rat corneal neovascularization

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Aim This study was to investigate the anti-angiogenic effect of hexahydrocurcumin (HHC) to evaluate gene (p-basic fibroblast growth factor (bFGF)-SAINT-18 & p-vascular endothelial growth factor (VEGF)-SAINT-18 complex)-induced corneal neovascularization(CorNV) in rats.

Methods CorNV was induced in 24 eyes of 24 rats. Four groups (Group A: 0 lg, B: 0.01 lg, C: 0.1 lg, and D: 1 lg) of HHC were prepared and implanted into the rat subconjunctival substantia propria 1.5 mm from the limbus at temporal side. The 1 lg of p-bFGFSAINT-18 & p-VEGF-SAIN-18 complex were prepared and implanted into the rat corneal stroma 1.5 mm from the limbus at the same side. Inhibition of CorNV was observed and quantified from day 1 to day 60. bFGF and VEGF protein expression were analyzed by biomicroscopic examination, western blot analysis, and immunohistochemistry.

Results Subconjunctival injection by 1 lg HHC successfully inhibited gene-induced CorNV in rats. bFGF and VEGF protein expression were reduced after 6 days. Meanwhile, the reduction of HLA-DR expression was detected.

Conclusions Our study showed that the HHC might provide an important anti-angiogenesis factor to inhibit CorNV development at the corneal experimental angiogenesis model.