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Tissue Plasminogen Activator as an Antiangiogenic Agent in Experimental Laser-Induced Choroidal Neovascularization in Mice

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PURPOSE. We investigate the antiangiogenic efficacy of tissue plasminogen activator (tPA) onexperimental laser-induced choroidal neovascularization (CNV) in mice.
METHODS. After CNV was induced by laser photocoagulation in 92 C57BL/6J wild-type mice,tPA (4 or 40 international units [IU]/ll) or PBS was injected intravitreally immediately after laser injury. Fluorescein angiography was performed on day 7 to grade CNV leakage. The CNV volume was measured by confocal microscopy in eyes enucleated 7 days after laser injury.
Immunohistochemical studies were performed 3 days after laser injury to evaluate fibrin/fibrinogen and CD31 expression. The possible adverse effects of tPA were assessed by electroretinography (ERG) and histology on day 7.
RESULTS. Intravitreal administration of tPA significantly suppressed CNV leakage and CNV volume in a dose-dependent manner ($P < 0.01$). Intravitreal injection of tPA suppressed fibrin/fibrinogen and CD31 expression in laser-induced lesions. Histologic examination and ERG showed no evidence of retinal toxicity in eyes injected with tPA.
CONCLUSIONS. Intravitreal injection of tPA suppressed fibrin/fibrinogen expression and laserinduced CNV. The current results suggested that tPA may be a potential therapeutic adjuvant for treating CNV.