ELEVATED N(EPsiLON)-(CARBOXYMETHYL)LYSINE IS ASSOCIATED WITH APOPTOSIS OF RETINAL PERICYTES IN STREPTOZOTOCIN-INDUCED DIABETIC RATS
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Advanced glycation end products (AGEs), including Nε-(carboxymethyl)lysine (CML), are believed to contribute to retinal pericytes loss in diabetic retinopathy. Nuclear factor-kappaB (NF-κB) activation has been considered as a potential cytotoxic modulator of retinal pericytes. Herein, we investigated whether CML accumulation can trigger NF-κB activation and apoptosis of retinal pericytes in streptozotocin-induced diabetic rats. Seven-week-old Sprague-Dawley rats were made diabetic (streptozotocin, 60 mg/kg). After 5 months, CML level and NF-κB activation were measured in trypsin-digested retinal vessels. In diabetic rats, TUNEL-positive and caspase-3-positive retinal pericytes were significantly increased. CML and NF-κB activation was also markedly increased in diabetic retinal vessels. Moreover, the immunoreactivity of NF-κB was localized within the region where CML were accumulated. Apoptosis occurred in CML-accumulated retinal pericytes. These results suggest that in vivo NF-κB activation was involved in CML accumulation in diabetic retinal pericytes. CML accumulation is responsible, at least in part, for the apoptosis of retinal pericytes.