

ABSTRACT

Aim: To investigate retinoprotective activity of Acetazolamide and Dorzolamide in retinal ischemia reperfusion injury in normal and STZ induced diabetic rats.

Methods: In the present study, wistar albino rats of either sex weighing 150-250 gm were procured from authorized suppliers. Rats were anesthetized by giving thiopentone sodium (45 mg/kg) by i.p. Surgical technique for the induction of retinal ischemia was adopted from the earlier published method. Under anesthesia midline incision was given. Common carotid arteries were identified and isolated carefully from vago-sympathetic nerve. Rats were made ischemic by occluding bicommon carotid arteries with thread for 30 min, followed by reperfusion for 4 h by removing the occlusion. The drugs Acetazolamide (30, 60 mg/kg) and Dorzolamide (10, 20 mg/kg) were administered 10 min before reperfusion. Then after 4 h reperfusion, animals were sacrificed and immediately both eyes were removed retinas were separated, homogenized, centrifuged and supernatant was collected, then various enzyme estimations were done and same procedure was followed in STZ (45 mg/kg; i.p.) induced diabetic rats.

Results: In I/R group significant increase in malondialdehyde, myeloperoxidase and depletion in catalase and superoxide dismutase levels were observed. Treatment with Acetazolamide and Dorzolamide significantly decreased the MDA and MPO levels whereas increased the SOD and CAT levels when compared I/R group in both non-diabetic and diabetic rats.

Conclusion: These findings suggest the retinal injury due to over production of oxygen radicals and Acetazolamide, Dorzolamide exert effect probably by radical scavenging and antioxidant activities.

Keywords: Reperfusion retinal ischemia, Acetazolamide, Dorzolamide, Oxidative stress.