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Abstract

The effect of Acetazolamide as carbonic anhydrase inhibitor on

developing eye

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Acetazolamide is routinely used medication in diseased eye; the aim of the present study is to investigate the effect of acetazolamide treatment during pregnancy on eye development. For this purpose, Pregnant wistar rats are divided into 3 groups of control and experimental groups. The rats in the experimental group received 70 mg acetazolamide, in drinking water, from the 6th day of pregnancy till the end of pregnancy. The newborns from both groups were sacrificed on the 1st and 5th days after delivery and their eyes were fixed in 10% formalin, embedded in paraffin. The sections were stained with H & E and studied with light microscope. The 3rd group kept till 15th day and checked for opening of the eyes. Morphometric study was carried out using computerized microscope and Motic image analyzer software. The data were statistically analyzed using student T-test. Microscopic study showed that eye development, in general, were not affected by acetazolamide treatment. However, the development of the lens, cornea and ciliary body were affected by the treatment. The morphology of the lens was changed, the thickness of the cornea reduced from 73.6 ± 3 ?m in controls to 50 ± 1.6 ?m (P < 0.001). In the ciliary body, the pigmented and non pigmented cells in the experimental group become flattened and their nuclei appeared vesiculated. It is concluded that acetazolamide treatment during pregnancy, in rat, causes flattening of non pigment cells in the epithelium of the ciliary processes, corneal thinning and morphological changes of lens fibers.

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