

AB049. Astrogliosis in the monkey retina in response to moderate fetal alcohol exposure

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Background: Exposure to ethanol in utero leads to several brain development disorders including retinal abnormalities whose underlying cellular pathogenesis remains elusive. We have previously reported changes in electroretinogram recordings in moderate fetal alcohol exposure (MFAE) vervet monkeys. The goal of this study is to characterize the anatomical effects of moderate MFAE during the third trimester in the vervet monkey retina.

Methods: Using immunohistochemistry and Western blots, we analyzed changes in the expression of cell-type specific proteins that may occur in the MFAE retina compared to the normal retina. We also compared the basic retinal anatomy across groups by examining retinal layering and thickness.

Results: Our main result indicates that GFAP (a potent marker of astrocytes) immunoreactivity was increased in the MFAE retina indicating strong astrogliosis. There was no obvious change in the overall anatomy in the MFAE retina and no significant differences in the mean thickness of each retinal layer. Furthermore, no significant changes in the morphology of the photoreceptors, horizontal cells, bipolar cells, and amacrine cells was observed.

Conclusions: These data indicate that astrogliosis is a consequence of prenatal alcohol exposure and might explain the reported changes in the electroretinographic responses.

Keywords: Fetal alcohol exposure; astrogliosis; retina; monkeys; immunohistochemistry

doi: 10.21037/aes.2018.AB049

Cite this abstract as: Bouskila J, Kucera R, Eid C, Bouchard JF, Palmour R, Ptito M. Astrogliosis in the monkey retina in response to moderate fetal alcohol exposure. *Ann Eye Sci* 2018;3:AB049.