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Histological Evaluation of Offspring Kidneys following Prenatal Vaping

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Histological Evaluation of Offspring Kidneys following Prenatal Vaping

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ABSTRACT

Pregnant women are advised to switch from cigarettes to electronic cigarettes to reduce the toxic effects on the fetus, however little research has been done on the impact of vaping on child development. In this study investigating the impact of inhalation exposure to a commercial product on reproductive and developmental functions, C57BL/6 dams were exposed to vapor from Vuse™ e-cigarette golden tobacco pod for 3 hours/day at two puffs per minute throughout gestation (Vape) or to filtered air (Sham). This resulted in smaller litter sizes, along with greater weights for Vape offspring at birth that returned to average by weaning. At weaning, the female offspring possessed proportionally larger kidneys compared to male. Histological analysis on the kidney found a non-statistically significant trend of an interaction between sex and exposure, with a reduction in density of glomeruli and of glomerular area to cortex area ratio only seen in males. In conclusion, there was a significant alteration in the size of the kidney in female pups, and a trend of interaction between sex and exposure resulted in a reduction in the density of the glomeruli in Vape males.

KEYWORDS: vape, kidneys, histology, mice, offspring

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