

**Ministry of Higher  
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# **Histological and Immunohistochemical Study of the Halothane effect on some Organs in Male White Mice**

A thesis submitted the partial Fulfillment of the Requirements for  
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In order to study the side effect of halothane on the some organs in the white mice, the study work carried out on (80) male white mice, which were divided into three groups. Each group was treated with halothane per 15 minutes daily through thirty days. The study designated to estimate the histological, physiological and cells proliferation changes in three treated groups after exposure to three different concentrations of halothane in ( lung, liver and kidney). The results of lung after exposure to 1% concentration of halothane showed that the bronchial tree filled with blood and secretion and showed emphysema in some regions of lung. The liver after exposure to 1% concentration of halothane showed that degeneration in liver parenchyma, cystic dilation filled with blood, granuloma, lipids accumulations and aggregation of inflammatory cells. The kidney results showed necrosis in renal tubules and aggregation of inflammatory. While the second and third groups have severe changes in histological structures and physiological parameters compared with first and the control group.

The tissue section of lung after exposure to 2% concentration of halothane showed that fibrosis, lung abscess, blood congestion in different locations of lung parenchyma with mild emphysema in wide regions of lung and some section showed absence the alveolar sac and replaced by cystic dilation. The tissue section of liver after exposure to 2% concentration of halothane showed large aggregation of kupffer cells in location of hepatocyte degeneration, lipidosis, bile accumulation, abnormal blood vessels in liver parenchyma, granuloma and showed that inflammatory cells distribution inside of dilated sinusoids. The tissue section of kidney after exposure to 2% concentration of halothane showed blood congestion between renal corpuscles and renal tubules, and wide space filled with RBCs and inflammatory cells.

The tissue section of lung after exposure to 3% concentration of halothane showed completely degeneration of alveolar wall in different location of lung, lung abscess, high aggregation of inflammatory cells as clusters around the affected alveoli and acute emphysema in some regions of lung characterized by absent the alveolar sac and instead by very wide cystic dilation. The tissue sections of liver after exposure to 3% concentration of halothane showed very wide sinusoidal dilation, granuloma, lipidosis, bile accumulation and large kupffer cells aggregation in different location of liver parenchyma and high numbers of inflammatory cells present commonly around the effected hepatocytes.

The tissue section of kidney after exposure to 3% concentration of halothane showed blood hemorrhage between the renal tubules, large aggregation of inflammatory cells between the renal tubules, and sever degeneration of epithelial cells that lining the internal lumen of renal tubules.

The immunohistochemical results showed significant differences in the cell proliferation between three treated groups compared with control group. The immunohistochemical result noted high cellular proliferation in the kidney, liver and lung in second and third groups compared with first treated group and control group. The physiological results of Urea, AST and ALT after exposure to three different concentrations of halothane noted significant increased in the level of Urea, AST and ALT compared with the control group.