HISTOLOGICAL STUDY FOLLOWING LEAD EXPOSURE OF SPRAGUE DAWLEY BRAIN

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ABSTRACT

HISTOLOGICAL STUDY FOLLOWING LEAD EXPOSURE OF SPRAGUE DAWLEY BRAIN

Lead is metal that has very high toxicity and dangerous to human body. Once it had been absorbed in the body, it would deposit on vital organ such as brain and induce apoptosis, a process of cell death. This study aimed to examine the effect of lead toxicity on apoptosis of brain cells through light microscopic examinations and at the same time, this study aimed to determine the morphological differences between normal cells and death cells. The brains were harvested from two rat groups, controlled group and lead-treated group. The rats in control group were fed with distilled water while rats of treated group were fed with distilled water and 0.2% lead acetate. 0.2% lead acetate was used in this study because previous research recorded that low level of lead exposure could induce cell apoptosis and may cause impairments in learning, memory and neurologic development especially in rats. All these brain samples were obtained from Dentistry Department, Uitm Shah Alam. The brains were sliced into extremely thin sections using microtome and stained using haematoxylin and eosin (H&E). The H&E staining is a staining method that had been widely used in histology to determine the structure of the cells. The haematoxylin stained the nucleus blue while eosin stained the cytoplasm with red colour. The result of this study demonstrated that low level of lead exposure could induce apoptosis in brain cells and it proved that H&E staining method is successful and reliable to observe and differentiate between normal and death cells. For future research, it is recommended to study the expression of genes that control the cell apoptosis for more precise and accurate assessment. The addition of more parameters helps to justify the validity of the results.