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Basic Medical Sciences

Poster

Topographical Changes of Rat's Colonic Mucosal After Chronic Arsenic Exposure - A Scanning Electron Microscopy Study

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Introduction: Human are exposed to arsenic threats in several ways. Our drinking water for instance, can be hazardous due to the contamination of arsenic-based pesticide and herbicide into our water supply. The most vulnerable part of our body due to ingestion of arsenic is our gastrointestinal system. Thus, the aim of this study was to determine the effects of chronic exposure to organic arsenic (Monosodium methylarsonate, MSMA) on the surface topography of rat's colonic mucosa by using scanning electron microscope (SEM). **Materials and Methods:** 30 Sprague Dawley rats were given daily oral gavage of MSMA 42.13 mg/kg, which is 1/30 LD₅₀, and 30 Sprague Dawley rats acted as control. 10 exposed rats and 10 control rats were sacrificed at regular intervals (2 months, 4 months and 6 months) and their colon specimens were examined by SEM. **Results:** In the control group, the colonic mucosa appeared normal with uniform size individual glandular units and has a central crypt orifice. The goblet cells were located in between the absorptive cells to produce mucous. In the exposed group, the rat's colonic mucosa showed increasing features of surface alterations such as haphazard shape of glandular units, slit-like crypt opening and less goblet cells with reduced number of microvilli. **Conclusion:** There were topographical changes of colonic mucosa of rats exposed to chronic low dose of organic arsenic.