Histopathological Examination of BALB/C Mice Receiving Strains of Acinetobacter baumannii Resistant to Colistin Antibiotic

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Abstract : Infections caused by Acinetobacter baumannii are among the common hospital-acquired infections that have seen an increase in antibiotic resistance in recent years. Colistin is the last treatment option against this pathogen. The aim of this study is to investigate the histopathology of BALB/C mice receiving sensitive and resistant strains of Acinetobacter baumannii to colistin. A total of 68 female laboratory mice weighing 30 to 40 grams of the BALB/C breed were studied in this research for three weeks under appropriate laboratory conditions in terms of food and environment. The experimental groups included: control group, second group, third group, fourth group. Lung, liver, spleen, and kidney tissues were removed from anesthetized mice and, after washing in physiological serum, were fixed in 10% formalin for 14 days. For dehydration, alcohol with ascending degrees of 70, 80, 90, and 100 was used. After clearing and soaking in paraffin, the samples were embedded in paraffin. Then, sections with a thickness of 5 microns were prepared and, after staining by hematoxylin-eosin, the samples were ready for study with a light microscope. In liver, spleen, lung, and kidney tissues of mice receiving the colistin-sensitive strain of Acinetobacter baumannii, infiltration of inflammatory cells and hyperemia were observed compared to control group mice. Liver and lung tissues of mice receiving strains of Acinetobacter baumannii resistant to colistin showed tissue destruction in addition to infiltration of inflammatory cells and hyperemia, with more destruction observed in lung tissue.