Metronidazole Decreases Viability of DLD-1 Colorectal Cancer Cell Line.


Source

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Abstract

Abstract The aim of our study was to evaluate the impact of metronidazole (MTZ) on DLD-1 colorectal cancer cell (CRC) line. Toxicity of MTZ was determined by MTT test. Cells were incubated with MTZ used in different concentrations for 24, 48, and 72 hours. The effect of MTZ on DNA synthesis was measured as [3H]-thymidine incorporation. The morphological changes in human DLD-1 cell line were defined by transmission electron microscope OPTON 900. The influence of MTZ on the apoptosis of DLD-1 cell lines was detected by flow cytometry and fluorescence microscopy, while cell concentration, volume, and diameter were displayed by Scepter Cell Counter from Millipore. Our results show that cell viability was diminished in all experimental groups in comparison with the control, and the differences were statistically significant. We did not find any significant differences in [3H]-thymidine incorporation in all experimental groups and times of observation. Cytolflourometric assays demonstrated a statistically significant increase of apoptotic rate in MTZ concentrations 10 and 50 μg/mL after 24 hours; 0.1, 10, 50, and 250 μg/mL after 48 hours; and in all concentrations after 72 hours compared with control groups. In the ultrastructural studies, necrotic or apoptotic cells were occasionally seen. In conclusion, MTZ affects human CRC cell line viability. The reduction of cell viability was consistent with the apoptotic test.

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