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The use of fluorouracil to create an acute irritable bowel syndrome model on mice

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Introduction Irritable bowel syndrome (IBS) is a functional disorder of the gastrointestinal tract characterized by abdominal pain, inflammatory processes, imbalance of the intestinal microflora and peristalsis with frequent concomitant cognitive impairment. It is known that the use of the antitumor drug 5-Fluorouracil (5-FU) leads to gastrointestinal damage, epithelial hyperplasia and villous atrophy in the small intestine. The aim of this work was to form a model of IBS using injections of 5-FU.

Methods The experiment was conducted on 3 groups of mice: the control group (n=20) with injections of sodium chloride, the 5-FU group (n=30) with injections of 5-FU (66 mg/kg) and the AB group (n=25) with injections of a cocktail of antibiotics [1], which was used as a classical model of IBS. In this study, indicators such as weight, mortality were monitored, and colon hypersensitivity was also assessed by measuring the threshold intensity of the abdominal flexor reflex and the level of anxiety using the "Integral Anxiety Index" and "Open Field" tests.

Results There was no significant change in body weight in all groups, while significant mouse mortality was observed in the AB group of 16%. Visceral hypersensitivity was observed in animals in the AB and 5-FU groups. At the same time, in both experimental groups, anxiety significantly increased in all behavioral tests relative to the control group.

Conclusions In this study, it was found that in mice of the 5-FU group, the level of anxiety was increased, as well as visceral hypersensitivity was increased, which indicates that 5-fluorouracil can form a model of IBS.

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