

## **MORPHOLOGICAL AND MORPHOMETRIC CHARACTERISTICS OF THE MUCOUS LAYER OF THE FLEXURE OF THE DUODENUM IN RATS OF DIFFERENT AGES WITH ACUTE POISONING WITH ETHYL ALCOHOL**

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### **Relevance**

Doctors have repeatedly observed the peculiarities of the course of diseases of the gastroduodenal zone in alcoholic diseases, their resistance to traditional methods of treatment, the tendency to frequent development of gastrointestinal bleeding and other complications leading to the death of the patient [3].

The rate of ethanol absorption into enterocytes is also determined by many factors, such as ethanol concentration, gastric emptying rate, food intake, dose, blood flow, intestinal motility, and intestinal wall permeability [1, 5]. Ethanol affects the basolateral membrane (BLM) of enterocytes due to rapid absorption into the vascular system of the duodenum, jejunum and ileum.

In recent years, considerable attention has been paid to the significant changes that occur in the intestinal tract during long-term alcohol consumption [2]. There is a growing need to elucidate new mechanisms of alcohol-related organ damage, as well as the mechanisms by which the gut contributes to various alcohol-related pathologies, to provide new opportunities for therapeutic options [4].

### **Goal of the work**

Study and comparison of morphological and morphometric changes in the mucous membrane in the area of the duodenal flexures when rats of different ages were poisoned with ethyl alcohol for 30 days.

### **Methods**

The study was conducted under standard vivarium conditions on 50 white rats of different ages. The experimental animals were divided into 2 groups: Group I - control group (n=27) 2 and 5 month old rats were injected into the stomach with 2.0



ml of distilled water using a metal probe for 30 days; Group II - experimental group (n=23) 2 and 5 month old rats were injected with 7 g/kg of ethyl alcohol into the stomach using a metal probe for 30 days.

The slaughter of experimental animals of the corresponding period was carried out using the method of planned decapitation in the morning on an empty stomach under the influence of ether anesthesia. The sections were subjected to comparative morphological and morphometric analysis using an eyepiece micrometer DN-107T/Model NLCD-307B (Roman, China).

### Results

In three-month-old rats, the thickness of the duodenal wall in the area of the inferior bend is on average  $846.0 \pm 13.92 \mu\text{m}$ , of which the thickness of the mucous membrane is on average  $507.6 \pm 8.35 \mu\text{m}$ . The average thickness of the epithelium is  $26.4 \pm 0.43 \mu\text{m}$ . The average thickness of the duodenal wall in three-month-old rats poisoned with ethyl alcohol for one month is  $1219.2 \pm 13.05 \mu\text{m}$ . The average thickness of the mucous membrane is  $731.5 \pm 7.83 \mu\text{m}$ , the average thickness of the epithelium is  $33.7 \pm 0.36 \mu\text{m}$ .

The average thickness of the duodenal wall in six-month-old rats is  $945.0 \pm 16.4 \mu\text{m}$  in the area of the inferior bend. The average thickness of the mucous membrane was  $567.0 \pm 9.8 \mu\text{m}$ . The average thickness of the epithelium is  $32.9 \pm 0.6 \mu\text{m}$ . Six-month-old rats poisoned with ethyl alcohol had an average thickness of the duodenal wall in the area of the inferior bend within a month of  $1164.0 \pm 13.9 \mu\text{m}$ . The average thickness of the mucous layer is  $675.3 \pm 8.1 \mu\text{m}$ . the average thickness of the epithelium is  $39.7 \pm 0.6 \mu\text{m}$ .

### Conclusion

In case of acute poisoning with ethyl alcohol in rats of different ages, the mucous membrane of the duodenum in the area of all bends thickens, i.e., undergoes hypertrophy. Among them, the area of the lower bend underwent the greatest changes, the total layer of which thickened by 19.4% in three-month-old rats and by 23.2% in six-month-old rats. All layers of the lower bend are thicker than the rest of the bend. In our opinion, this is explained by the duration of the effect due to the relatively long storage of chyme in the descending duodenum.



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