

Ameen Hayder Kawa

MORPHOLOGICAL CHANGES IN ORGANS OF DIGESTIVE TRACT  
OF RATS IN EXPERIMENTAL ACUTE INTESTINAL INFECTION IN  
THE THERAPY WITH COLLOIDAL SILVER

Department of infectious diseases with epidemiology (M.D. Chemych,  
MD, professor; K. S. Polovyan, assistant) Sumy State University

The role of conditionally pathogenic microflora (CPM) with resistance to antibiotics is growing. In Ukraine, like in the world increases the incidence of acute intestinal infections (AII), caused by CPM. As an alternative antibacterial drugs nanotechnology offer colloidal silver, which is a solution consisting of silver's particles over 25 nm.

The aim of the work was to study morphological and functional changes of the digestive tract (liver, colon and small intestine) of rats in experimental AII caused by the CPM, under therapy by colloidal silver.

In 16 mature man rats weighing 200-250 g. AII caused by the oral administration of 1,0 ml mixture of cultures CPM every 4 hours per 5 days. In experiment in vivo animals were divided into groups as follows: group 1 – control (8 rats) received baseline treatment: orally rehydron injected (2,5 ml/day), orally smecta (0,15 g/day in 3 divided doses) and pancreatin (12 mg/day in 3 divided doses); group 2 – research (8 rats) on the background of baseline therapy orally received 2 ml colloidal silver (0.02 mg/day) every  $(24 \pm 2)$  hours for 7 days. The total duration of observation of rats was 14 days. Over the entire period of observation deaths in experimental animals were not.

The histological study of walls of the small intestine and colon of rats in control group the acute enterocolitis observed in moderate activity. In the experimental group this changes break down slightly. In a baseline therapy the histological structure of liver characterized by particular

dyscomplexation, swelling of the parenchyma. In a therapy with colloidal silver were found optimizing histological structure of the liver.

In the study of morphometric parameters of liver the average area of hepatocyte's nuclei in a baseline treatment of AII was in 1,4 times less than in rats in treatment with colloidal silver, and the average area of the cytoplasm of 1,7 or more. The number of Kupfer's cells was in 73,3 % higher and the number of hepatocytes in the beam in 76,0 % less in the field of view compared with those obtained in the study of rat's liver from experimental group.

Conclusions. The activity of inflammatory process and expressed of morphological changes tissue of small intestine, colon and liver in experimental AII in the conditions treatment with colloidal silver, goes down, that testifies to the positive effect of the probed preparation comparatively with baseline therapy.