Introduction

The problem of acute intestinal infections due to their wide spreading and relatively low efficiency of chemotherapy and immunological drugs, remains actual. One of the urgent problems is chronic colitis. Chronic colitis is a group concept, which includes diseases of the colon of different etiology with inflammatory and degenerative changes in the intestinal wall. Chronic non-ulcerative colitis is a chronic inflammatory disease of the colon, characterized by inflammatory, degenerative, and prolonged course, atrophic changes in the mucosa and dysfunction of colon. Etiology and pathogenesis of chronic non-ulcerative colitis is not completely clear. It is believed that in the etiology of chronic non-ulcerative colitis act as psychogenic (neurosis, depressive and asthenic conditions, etc.), neurogenic (dystonia, etc.), endocrine-hormonal, nutritional, toxigenic, medical reasons, so an intestinal infection, which has tropism to antigens of mucosal epithelial cells of a colon (enterobacteria of genus Shigella, Salmonella).

An important step in the study of Escherichia were Kaufman studies of antigenic structure. Available in Escherichia O-, K-, H- and M-surface antigens make it possible to characterize their pathogenic role for the human body. For clarification of issues that E.coli can cause variations of escherichioses, there is a need to study their antigenic structure. In literature there is an information about the isolation of E.coli in patients with chronic non-ulcerative colitis that cause dysentery-like, cholera-like diseases and escherichioses.

Aim. To set the level persistence of enteropathogenic Escherichia and their importance in the ecological system "microorganism-microbiota" in colon of patients with chronic non-ulcerative colitis

Materials and Methods

During the 2000-2015 years there has been conducted a bacteriological examination of the content of colon cavity in 27-41 years old (average age 37.74 ± 3.62 years) patients with chronic non-ulcerative colitis. Among the patients there were 97 (61.78%) women and 60 (38.22%) men. Clinical diagnosis was verified on the basis of typical complaints, medical history, results of clinical laboratory tests and instrumental examination using modern tools and devices. The control group consisted of 107 healthy individuals who for six months has not suffered any illness and not taking antimicrobial drugs.

From patients for bacteriological examination there was obtained a fresh content of colon cavity and during at most 2 hours it has been performed bacteriological examination. The content
delivered in preservative was stored at 2-6 °C. Content delivered without preservative, was suspended in saline solution at ratios of 1:10 (10⁻¹). There was conducted a titration of content samples from 10⁻² to 10⁻⁹. From the last three tubes there was made seeding on sectors of Endo’s, Ploskirev’s and bismuth-sulfite agar (BSA) media. Sometimes study was limited itself with only Endo’s medium, seedings were placed in thermostat at 37 °C for 18-24 hours, but when sown in BCA – after 48 hours. Colonies were visually studied. Selection of lactase-negative and weak fermenting colonies and comparing them with typical colonies (lactase-positive with metallic hue), was conducted under the supervision of agglutination on glass with OKA polyvalent serum. The second part of the colony, which gave positive agglutination test, was seeden on slant slightly alkaline MPA to obtain a pure culture. To determine the production of catalase in E.coli there was used 3% hydrogen peroxide solution. The resulting culture was tested in indicative agglutination with OKA polyvalent serum. Positive cultures were tested with polyvalent sera of narrow spectrum: OKB, OKC, OKD and OKE. Then there were performed agglutination tests with type-specific monovalent sera. In rare cases, to confirm a serotype of E.coli there were used a volumetric agglutination with OK-monovalent sera. For the reliability of the results there was set a control of serum and culture.

In the studied population of enteropathogenic Escherichia, taking into account that the number of E.coli per unit of weight (1.0 g) reaches millions, the results were expressed in logarithm of the number of viable (colony forming) Escherichia (lg CFU/g).

Statistical analysis of digital data was performed using the software package “Statistica 6.0 for Windows”. using the Student’s t-test. The results considered significant at p<0.05.

**Results and discussion**

Among E.coli there are those that can induce enteritis and colitis, ranging from moderate diarrhea to severe cholera-like disease. Mostly disease occurs in children (1-2 years old), often in organized groups. However Escherichia are capable of causing the same disease in adults. Sometimes these diseases occur as dysentery. Clearly, when examining these patients, in addition to finding Salmonella and Shigella, an attention was paid to the detection of Escherichia.

Escherichia infection is characterized by pronounced polymorphism of clinical picture, due, in our view, not only protective factors of innate immunity of the body of the patient, but antigenic properties of entenopathogenic Escherichia. In patients in whose colon cavity there was found E.coli O18ac:K77; O26:K60; O55:K59; O128ab:K67, the disease ran in
nosological form of *E. coli* enteritis. In patients with identified serotypes O25:K11; O144:K; O124:K72 (enteroinvasive *Escherichia*) from colon cavity disease ran as bacterial dysentery. The disease in some patients who persisted *E. coli* O25:K11 (4 patients) and O128:K67 (2 patients), ran in cholera-like form.

In patients with chronic non-ulcerative colitis there were identified serotypes relating to enteropathogenic, enterotoxigenic, enteroinvasive and enterohemorrhagic *E. coli*. Most are identified enteropathogenic *E. coli* that included 10 serotypes, among which were often O114:K90 (constancy index – 6.37%), O18ac:K77 (constancy index - 5.10%) and O128:K67 (constancy index – 5.10% ). Among enterotoxigenic strains often were found serotype O25:K11 (constancy index - 6.37%), among enteroinvasive one - serotype O124:K72 (constancy index - 5.73%) and among enterohemorrhagic *E. coli* - O128:K67 (constancy index -5.10%).

**Conclusions**

1. In patients with chronic non-ulcerative colitis there are commonly found *E. coli* in the colon cavity in 94.50% of patients, however, in 55 (35.03%) patients persist enteropathogenic *Escherichia*, in 41 (26.11%) patients - *E. coli Hly +*, in 37 (23.57%) - *E. coli Lac -*, in 18 (11.46%) - enterotoxigenic *E. coli*, in 14 (8.42%) - enteroinvasive *Escherichia* and in 11 (7.01%) - enterohemorrhagic *Escherichia*, which, in exeption to ordinary *E. coli*, have cross-reacting antigen to epithelial cells of the colon mucosa, which forms the assumption of etiological importance in this disease, which is impossible to ignore.

2. The main serotypes of opportunistic *E. coli* that colonize and persist in the colon cavity of patients with chronic non-ulcerative colitis are O114:K90; O25:K11; O124:K72; O128:K67; O18ac:K77, persistence of which affects the of clinical manifestation of colitis to dysentery-like or cholera-like diseases.