Intestinal dysbiosis of male Wistar rats was induced by ampicillin and metronidazole. Indigenous enterococci (group E), lactobacilli (group L), bifididobacteria (group B) were isolated from feces before the antibiotic usage and then separately or as mixture of three strains (group M) were given to the animals for 4 days. Rats from control group 1 (C1) didn`t receive autoprobiotics. Animals from control group 2 (C2) didn`t receive antibiotics and autoprobiotics. The study of fecal samples, collected on 4th and 9th days of experiment, was performed by RT-PCR and by metagenome 16S rRNA analysis. The cluster differentiation of lymphocytes was analysed using flow cytometry.

Dysbiosis is characterized (on 4th day) by excessive abundance of filum *Gammaproteobacteria*, *Proteus* spp. (Pr) and, *Klebsiella* spp. (K), and decrease of *Faecalibacterium* sp. (F), *Prevotella* spp. (Pv), *Bacteroides* spp., *Lactobacillus* spp. populations. The decrease abundance of opportunistic enterobacteria was minimal in groups C1 and M. Low efficacy against Pr and K, main decrease of *Lactobacillus* spp. and *Paraprevotella* spp. content in M group coincided with maximum shifts in cluster differentiation of lymphocytes: increase of B-cells, NK-cells, decrease of T-cells and $CD3^+CD8^+$ T-lymphocyte. Surprisingly no significant changes in the immunogram of rats from the group C1 could be detected.

Indigenous enterococci stimulated growth of bacteroides and inhibited growth of lactobacilli and Pv. This autoprobiotic demonstrated low antagonistic activity against Pr. Indigenous lactobacilli inhibited the growth of the Pr and restored the number of Pv. and F. Significant decrease of both K and Pr percentage abundance and the increase of F were observed in group B.

Changes in the composition of microbiota correlated with changes of immunity in different experimental groups. The increase in the abundance of F correlated with the increase of $ThCD3^+$.

$CD25^-FoxP3^+$ content in the spleen in groups L and B. It was found that content of Th $CD44^+62L^+$ lymphocytes in the blood, which was reduced in group B and E inversely correlated with the abundance of *Gammaproteobacteria*.

It should be noted that implementation of autoprobiotics besides the influence on microbiota have a significant effect on immunity, which varies depending of the type of autoprobiotic. The mechanisms of immunomodulatory effects of autoprobiotcs are not yet clear and require further studies.

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POTENTIAL INFLUENCE OF IMMUNOMODULATORS ON THE PRODUCTION OF INTERFERON-GAMMA AND INTERLEUKIN-10 IN LABORATORY ANIMALS VACCINATED AGAINST PLAGUE

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The improvement of specific prophylaxis of infectious diseases involves the search for new highly effective immunomodulators to influence the activation of the factors of active and adaptive immunity. As potential components that increase the effectiveness of live plague vaccine, polyoxidonium and Ingaron (Interferon gamma human recombinant), preparations with a stimulating effect on immune system are of some interest.

The comparatives analysis of polyoxidonium and Ingaron effect on interferon-gamma and interleukin-10 production in BALB/c mice when immunized with culture of *Yersinia pestis* vaccine strain EV line NIIEG were studied.

200 BALB/c mice were subcutaneously immunized with a *Y. pestis* EV NIIEG culture at dose of 2.5×10^4 (group 1), in combination with polyoxidonium at dose of 4 μg (group 2), or with Ingaron in dose of 150 IU (group 3), intact mice (group 4) served as controls. The content of cytokines in blood was determined by enzyme immunoassay on the 3rd, 7th, 21st and 90th days after injection of preparation using commercial test systems (eBioscience, Austria).

On the 3rd day of the experiment, significant increase in the level of both interferon-gamma and interleukin-10 was established in all animals of experimental groups (1 — 58.3 and 29.0; 2 — 57.2 and 65.9; 3 — 83.2 and 45.6 pg/ml, respectively), compared with intact mice (26.2 and 11.1 pg/ml). An increase in the level of cytokines by 3–4 times was noted in the experimental group at 7 and 21 days after immunization. A significant decrease in the amount of interferon-gamma (1 — 48.4; 2 — 35.6 and 33.2 pg/ml in 3 group) was showed after 3 months, but it remained high compared to control (16.3 pg/ml). Content of interleukin-10 in blood of group 1 and group 3 mice decreased sharply by 90th day of observation (to 16.5 and 12.7 pg/ml), while in group 2 remained at high level (34.6 pg/ml), which indicates a possible prolonged action of polyoxidonium on production of cytokines — biomarker for anti-plague immunity.

Thus, potentiating effect of immunomodulators in laboratory animals vaccinated against plague has been established.

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NEUTROPHIL/LYMPHOCYTE DISBALANCE AS A PREDICTOR OF VAGINITIS

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Infectious vaginosis or cervicitis is a frequent cause of ginecologist's appointment. Vaginitis is vaginosys of bacterial, viral or fungal etiology. During this inflammation vagina or cervix surface leucocytes count increases significantly. We were interested how white blood cells (WBC) count changes in peripheral blood during vaginitis and/or cervicitis.

The aim of the study was to estimate absolute and relative WBC count in peripheral blood from patients with and without vaginitis.

A total of 26 (mean age 40±19) women visited IDC ginecologist between 28 April to 12 June 2018. Informed agreement was received from all patients. Blood samples were collected in 5 ml K3 EDTA Vacuette tubes. Alifax Roller was used to erythrocyte sedimentation rate (ESR) determination, Sysmex XN was used to complete blood cell count (CBC) determination. The ginecologic slides were heat-fixed and stained with azur-eosine.

Microscopic exam of normal cervix slides shows not more 15 leucocytes in field-of-view (fov) at 1000 total magnification. Normal vagina slides contains 0–10 leucocytes in fov. Peripheral WBC rates was graded according to age. So we divided patients into 4 groups: with normal leukocyte count in the blood and urogenital tract (n = 10), with normal WBC in blood and elevated WBC in cervical and/or vaginal slides (n = 8), with normal blood and increased WBC values in the urogenital tract (n = 4) and abnormal WBC in hole blood and normal urogenital parameters (n = 4).

Parameters of peripheral blood in this group were compared with the group with normal values. The most numerous group had abnormal parameters both in blood and in cervix or vagina.