Prospects for further research. All of the studied inflammatory cytokines increase significantly in this model, as well as the GCL enzyme and appear to be useful markers to observe in order to confirm inflammatory response in J774A.1 macrophages in a model of LPS stimulation. Although necroptosis is a process related to inflammation, RIP3 as a marker does not provide robust confirmation for cellular response. Each laboratory should perform preliminary experiments in order to identify most appropriate LPS concentrations depending on cell density and other parameters of the experiment.

Key words: J744A.1, LPS, markers, inflammation, oxidative stress, necroptosis

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IN VITRO EFFECT OF THE EXTRACT OF WALNUT PREPARATION ON THE PRE-IMMUNE RESISTANCE IN PATIENTS WITH CHRONIC TONSILLITIS

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The pre-immune resistance is the most ancient type of defense that appeared before the acquired immunity. Studies showed that that there is a unified system of protective factors in the body, including phagocytosis, which plays an important role at the initial stages of body protection from infections [1,2]. Preparations isolated from various herbs and seeds have great importance for the regulation of altered parameters of pre-immune resistance [3]. Study of the effect of some plant polyphenols on E. coli bacteria in vitro showed that quercetin and tannin possessed the greatest antioxidant activity [4]. The preparation EN was prepared from walnut, which contains polyphenols up to 20-22%, free amino acids up to 0.92-1.02% (of which essential ones are up to 0.17-0.20%, immunoactive ones being up to 0.20 -0.22%), iodine - up to 0.2 mg/l and iron - up to 0.4 mg / l. In addition, the drug had shown antimicrobial activity. In this regard, the aim of the study was to investigate the in vitro effect of the EN preparation on neutrophil activity.

Material and methods. The study included 39 patients with chronic tonsillitis (age 20±1,5) and 116 healthy people (age 22±2,7). A standard in vitro NBT (Nitro-Blue-Tetrazolium) test was performed (phagocytic activity of neutrophils was assessed in Nitro-Blue-Tetrazolium) in all patients. A suspension of leukocytes was used as control and compared to leukocyte suspension mixed with EN preparation diluted 1/128.

Results. The analysis of the effect of the drug EN on NBT-test showed that the EN preparation had stimulating effect on NBT-test in 60% of patients (Table 1). In 25% patients the EN preparation had no modulating action and in 15% - the EN preparation showed suppressive effect on NBT-test. Thus, EN had a stimulating effect in bigger part of cases.

The NBT-test in the group of healthy subjects was 0.12 ± 0.003, which is significantly higher than in the 1 subgroup of patients with the stimulating effect (p<0.001) and significantly less than in the 3 subgroup of patients with a suppressive effect (p< 0.001). The NBT-test in the 1 subgroup, where the stimulating effect was noted, was initially significantly lower than in the 2 and 3 subgroups (p<0.001 in both cases), and under the influence of the EN preparation it increased to the level of healthy ones. The NBT-test in group 3, where the suppressive effect was noted, was initially significantly higher than in the 1 and 2 subgroups (p<0.001 in both cases), and under the influence of the EN preparation it decreased to the level not significantly different from the healthy ones.

Table 1

| Index              | EN (39 patients) |
|--------------------|------------------|
| NBT-test (healthy) | 0.12±0.003       |
| NBT-test (control) | 0.09±0.001       |
| NBT-test (EN stimulation) | 0.12±0.002 |

| Index          | EN (39 patients) |
|----------------|------------------|
| NBT-test (healthy) | 0.12±0.003       |
| NBT-test (control) | 0.09±0.001       |
| NBT-test (EN stimulation) | 0.12±0.002 |

■ - reliability between 1-2 subgroups, □ - reliability between 1-3 subgroups,
○ - reliability between 2-3 subgroups

Table 2

Results of analysis of lymphocyte subpopulations in subgroups of patients

| Index          | EN (39 patients) |
|----------------|------------------|
| 1 (stimulating) |                  |
| 23 (60%) patients |                |
| NBT-test (healthy) | 0.12±0.003       |
| NBT-test (control) | 0.09±0.001       |
| NBT-test (EN stimulation) | 0.12±0.002 |

■ - reliability between 1-2 subgroups, □ - reliability between 1-3 subgroups,
○ - reliability between 2-3 subgroups


**USE OF BIOLOGICAL MARKERS FOR DETECTION OF THE ATYPICAL FLORA IN CHILDREN WITH RECURRENT BRONCHOPULMONARY DISEASES**

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Pathology of the respiratory system is the leading in the structure of childhood diseases. Recurrent bronchopulmonary pathology in children remains difficult for differentiating and requires use of combination of methods. The similarity and recurrence of symptoms of bronchitis caused by different health problems underlines importance of biological markers. The aim of the research was to assess role of biological markers for evaluation of the role of the atypical flora in the course of recurrent bronchopulmonary diseases in children.

**Materials and methods.** The study included 143 children who were admitted to the Zaporizhia Children’s Multi-Profile Hospital due to recurrent bronchitis (3 and more episodes per year). Age of children ranged from 3 to 15 years. 77 patients were aged 3-7 years (53.8%), 66 patients - 7-15 years - (46.2%). The ratio of male and female was approximately equal: 77 and 66 people (53.8 and 46.2%). Blood samples were taken according to the standard procedure. Immunoglobulins were detected with ELISA method. Bronchial asthma was verified following GINA guidelines.

**Results:** Analysis of the lymphocyte subpopulations (Table 2) revealed significantly the lowest CD3 lymphocyte count in the 1 subgroup of patients where the EN drug had a stimulating effect. Analysis of the parameters of circulating immune complexes in the subgroups of patients revealed their highest content also in 1 subgroup of patients (419±26.5) in comparison with the 2 and subgroups (305±28.9; 163±43.9). This indicates the highest tonsillogenic toxicity in patients of subgroup 1.

Thus, the 1 subgroup of patients, where the stimulating effect of the drug EN on the NBT-test was revealed, was characterized by low level of T cell, highest rates of the CIC.

**Conclusions:**
- the EN preparation showed a multidirectional immunological effect;
- the EN preparation acted in a stimulating manner on low indices, on high indices - in a suppressive manner, on indices close to normal - did not have any modulating effect;
- the EN preparation can be used to modulate the preimmune resistance indices in patients with chronic tonsillitis.

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