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EFFECT ON POSTPARTUM DEVELOPMENT OF LYMPHOID TISSUES IN PROGENY AIRWAY WALLS DUE TO CHRONIC EXPOSURE TO AIR POLLUTANTS

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Abstract
In recent decades, environmental pollution has become one of the most important environmental and medical problems on a global scale. The expansion of industrial production, the acceleration of urbanization, the increase in the number of vehicles, and the development of the energy sector have led to the pollution of atmospheric air with various chemical substances. The presence of nitrogen oxides, sulfur dioxide, carbon monoxide, ozone, various aerosol particles, heavy metals, and other toxic components in the composition of atmospheric air has a significant negative impact on human health. In particular, the chronic impact of these factors can cause morphofunctional changes in the functioning of various systems of the body.

Introduction

During the formation of the body, especially during the period of antenatal (in the womb) and postpartum postnatal ontogenesis, these aggressive environmental factors have a negative impact on the developing tribal systems. " Lymphoid tissue (BALT-Bronchus Associated Lymphoid Tissue), located in the bronchial wall and associated with local immunity, performs a function of protection against antigens.

It is important to study morphometric criteria for the formation, structural changes and histological structures of the domestic immune system of the respiratory tract, early prevention and detection of pathomorphological patterns of diseases of the respiratory system among children during the postnatal development of offspring born from mothers in an environmentally unfavorable environment.

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Purpose:

Comparative assessment of morphometric features of the development of lymphoid tissues in the walls of the respiratory tract at the stages of postnatal ontogenesis of offspring in conditions of chronic air pollution.

Scientific research method and material

Experimental research work was carried out in ripe white laboratory rats. In order to reproduce and provide an environment for their development, experimental animals (male and female rats) were kept and multiplied in 3 separate rooms.

Group 1 (Control group):. Rat genus in a room equipped with special air purification filters (HEPA filters) with constant control of clean air flow.

Group 2 (Reference Group):. Prose of rats stored in the premises of a conventional laboratory (in the medium of natural urban air circulation).

Group 3 (Experimental Group):. Offspring of rats in a sun-polluted room. At the same time, the air of the room is constantly polluted with poisonous smoke and combustible gases formed during the burning of motor vehicles.

Rat infants born in these three environments were taken for study during periods of dynamic development of postnatal ontogenesis, i.e., days 3, 7, 14, 21, and 30 postpartum.

Histological sections are made from the walls of the bronchi, which are stained by traditional methods: microscopic and morphometric study of the resulting drugs is carried out using modern digital microscopy and computer analysis programs.

The main morphometric indicators studied are:

The following 9 criteria were taken as the basis for assessing the state of the bronchial airways and lymphoid structures.

1. thickness of the bronchial mucosa
2. epithelial cell height
3. The number of cup-shaped cells per unit of a certain area
4. Lymphoid follicle area
5. Lymphoid follicle diameter
6. Total lymphoid follicles per unit area
7. Germinal center area
8. Diameter of germinal center
9. Lymphoid cell density

3.Expected results

Currently, histological and morphological studies are ongoing. However. based on pathomorphological patterns and observational data, the following results are expected.

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• In Group 3 (polluted air): As a result of local exposure to toxic substances containing smoke, mucosal thickness is increased by inflammation and exudation of bronchial mucous membranes, compensating for the dramatic increase in mucosal-producing cells.

• In the immune system (BALT):. It is assumed that the area of lymphoid follicles and their germinal centers under the influence of harmful substances will change significantly compared to the control group or will lag behind development (hypoplasia). This difference is expected to occur in the 21st and 30th (active breathing) generations.

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