

Translocation of intestinal microflora into lung tissue with acute destructive pancreatitis

Keywords: acute destructive pancreatitis, enterobacteria, microflora, *staphylococcus aureus*, animals

Abbreviations: ADP, acute destructive pancreatitis

Opinion

Despite the progress achieved in intensive care and surgical treatment, mortality at complicated acute destructive pancreatitis (ADP) remains relatively high, requiring further development of diagnosis methods, prevention and treatment of complications ADP. Considering results of microbiological research set forth in our works, which show the translocation of pathogenic enterobacteria conventionally, staphylococci and bacteroides to mezenherialnu lymphatic system, and therefore to the thoracic lymph duct, and thence into the upper vena cave with the need of contamination study of lung tissue in the process of formation and development of acute destructive pancreatitis.

The received results of species composition research lung tissue microflora in different periods ADP show that in 24hours of modeling ADP the lung tissue contamination by conditionally pathogenic enterobacteria (*E. coli*, *K. pneumonia*) and epidermal staphylococcus take place in 5 of 7animals, as well as in 48hours enterotoxigenic *Escherichia* and *staphylococcus aureus*. In 72hours pathogens were isolated only in 3 of 7animals, and in 96hours - in one. Later lung tissue was sterile.

These researches of population level of microflora that persists in the lung tissue of experimental animals ADP demonstrate that its concentration is minimal and does not reach the critical level at any time of observation. Such a low population level in the lungs microflora is connected with the high efficiency actions of the factors and mechanisms anti infectious defence that meet microbes at a translocation into this biotope. In the area of alveoli and the smallest bronchi's the leading role belongs to alveolar macrophages and other phagocytic cells. At phagocytosis decay of microorganisms in phagolysosomes occurs, and the remains of microorganisms are transported by alveolar and migrating macrophages into mucociliary system, where the elimination components of bacteria take place. At the hits of microbial agents immune mechanisms are included. In the area of the alveoli and airway immune responses are mediated by different structural elements. The leading role in alveolies play alveolar macrophages, which come from bone marrow, but in the process of development of inflammation conduct specific changes in organs with maintenance of functional activity (processing of microorganisms). They make up 85-95% of the cells in the distal departments of lung, 7-15%-lymphocytes, of which 70%-T-lymphocytes, in mainly activated form, 10% - B-lymphocytes and 20% zero lymphocytes. Granulocytes make up 1.2% of all cells. All this confirms the high degree of cooperation immune competent cells at forming cells in the immune response to bacteria entering the lungs. Besides, the alveolar fluid contains immune globulins of all classes, with the highest concentration Ig A, and all components of the complement system too. Listed shows power of anti infectious protect of lung tissue. Therefore,

Volume 9 Issue 5 - 2018

Rotar DV

Department of Microbiology and Virology, Bukovyna State Medical University, Ukraine

Correspondence: Rotar DV, Department of Microbiology and Virology, Bukovyna State Medical University, Ukraine, Email diana.rotar@bsmu.edu.ua

Received: February 15, 2018 | **Published:** September 25, 2018

microflora, which contaminates lungs undergoes significant inhibition that prevents the growth and reproduction of these microorganisms that cannot reach the critical population level.

Thus, the formation and development of experimental ADP in 24-96hours is translocation of pathogenic enterobacteria and conditionally staphylococcus in lung tissue, but thanks to a well-developed factors and mechanisms of nonspecific and specific immune protection anti infectious in the tissue of the lungs (in the area of alveoli and terminal bronchies) that inhibit the growth and reproduction of microorganisms, they do not achieve not only high, but moderate population level. In further terms the lung tissue is sterile.

Set translocation of pathogenic and conditionally pathogenic enterobacterias, staphylococci and other microorganism's bacteroides into viscera, blood and peritoneal cavity made us to determine the degree of contamination of the pleural cavity. Translocation habitat now occurs only in 24hours, with conditionally pathogenic enterobacterias (*E. coli*, *K. pneumoniae*) in contents are released in 3 from 7animals, and in 48 hours *E. coli* is observed in only one research. In other periods of observation the pleural cavity was sterile. Thus, the pleural cavity in experimental ADP is contaminated by conditionally pathogenic enterobacterias in the period of 24-48hours.

The results of research microbiologist content pleural cavity, aimed at establishing of a population level of microflora that persists in this biotope showed that conditionally pathogenic enterobacterias appear only in 24 and 48hours in the low population level (minimum-2-3orders of magnitude below the critical).

Thus, in the process of development of experimental ADP, which is accompanied by qualitative and quantitative violation in the relationships between autochthonous obligate and facultative and allochthon representatives of intestinal microflora disorders with profound colonization resistance of the mucous membranes of the intestine, especially deep breach of mukoz microflora distal small intestine, occurs transient (short-lived) pleural cavity contamination with pathogenic enterobacteria conventionally (*E. coli*, *K. pneumoniae*) in the low (minimum) population level.¹⁻⁴

Acknowledgements

None.

Conflict of interest

The author declares no conflict of interest.

References

1. Bodyaka VU, Ivachuk OI, Bekh VV, et al. Features of bacterial translocation in the case of intra-abdominal hypertension experiment. *Medical Gazette*. 2012;4(64):15–21.
2. Ivachuk SI. Translocation of pathogenic and conditionally pathogenic microorganisms in the tissue of internal organs in the process of formation and course of experimental acute pancreatitis edematous. *Clinical Anatomy and Operative surgery*. 2014;4:S23–S28.
3. Rotar DV. Dynamics of hematogenous spread of intestinal microflora in the case of experimental acute destructive pancreatitis. *Medical Gazette*. 2014;3(71):132–137
4. Sydorhuk LI. Autochthonous obdihahna, facultative anaerobic and aerobic microbiota of dystal-ing small intestine splenektomirovarats. *Clinik and experimental pathology*. 2011;2(36):91–95.