ANTIMICROBIAL PEPTIDES IN FORMING OF MICROBIOCENOSIS OF FEMALE REPRODUCTIVE TRACT AT LATE PREGNANCY.

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Natural antimicrobial peptides (AMP) are an important component of mucosal defense in all mucosal surfaces, including reproductive tract (A.W. Horne, 2008). They are secreted by neutrophils, macrophages, epithelial cells and other cells of innate immunity. Main role of AMP is direct killing of bacteria, viruses, protozoa and fungi, stimulation of chemotaxis, proteases inhibition and angiogenesis (A. Bellemare et al., 2010).

The aim of research was to establish correlation between AMP expression and amount of bacteria in reproductive tract in late stage of pregnancy.

Materials and methods. 85 pregnant women of 38-41 weeks of gestation were examined. Anaerobic and anaerobic bacteria in cervix uteri were detected by standard bacteriological methods. mRNA expression of secretory leukocyte protease inhibitor (SLPI), human neutrophils peptides (HNP) 1-4, human defensins (HD) 5-6 and human beta-defensins (HBD) 1-4 was detected using qPCR according to MIQE guideline (S. Bustin et al., 2009). Results were analyzed using CFX96 ("Bio-rad laboratories", USA). Human beta-actin and peptidylprolyl isomerase A (PPIA) were used as housekeeping genes. Results were calculated as delta-delta cq and estimated by Mann-Whitney criteria.

Results. Strong positive correlation between expression of SLPI and quantity of Staphylococcus aureus (R=0,83; p<0,05), HBD1 and Escherichia coli (R=0,62; p<0,05) and HBD4 and Lactobacillus (R=0,76; p<0,05) were observed. Moderate correlation was observed between Lactobacillus and HNP3 (R=0,56; p<0,05).

Negative correlation was observed between amount of Clostridium and HD5 (R=0,83; p=0,05) and Corynebacterium and HNP3 (R= -0,46; p<0,05).

Our data confirm results of E.V. Valore et al. (2006), which described lower levels of defensins in case of bacterial vaginosis. It was also described, that stimulation of HBD1 expression can be observed in bowl due to presence of E. coli (Rieg, S. et al., 2009). Alfa-defensins can inhibit growth of Clostridium difficile and inactivate its toxins in serum (R.I. Lehrer et al., 2009).

Thus, antimicrobial peptides play important role in regulation of vaginal microbiocenosis and can be considered as possible medicine agent in the future.