DETECTION ADHESIVE PROPERTIES OF MICROORGANISMS THAT CAUSE COMMUNITY ACQUIRED PNEUMONIA IN CHILDREN

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Biofilms formation is one of main virulence factors that have pathogenic microorganisms. It is known that microorganisms inside biofilms are more resistant to the action of antibiotics comparing with planktonic cells. Adhesion is the first stage of biofilms formation.

The aim of this study was to detect adhesive properties of microorganisms that cause community acquired pneumonia in children. Strains of *S.aureus, S.pneumoniae, K.pneumoniae, P.aeruginosa* were used in the research. Was detected Index of adhesion of microorganisms. When Index of adhesion of microorganisms was less than ≤ 1,75 strains of microorganisms considered to be non adhesive; from 1,75 to 2,49 – low adhesive, from 2,51 to 4,0 – moderately adhesive, more than > 4,00 – highly adhesive. For comparison of two constituents was used Student's t test. For comparison more than 2 constituents was used Kruskal-Wallis ANOVA by Ranks. A *p* value less than 0,05 was considered statistically significant.

Among strains of *S.aureus* 11 strains were moderately adhesive (84,6%), 2 strains – low adhesive (15,4%). Index of adhesion of *S.aureus* was 3,41±0,50. Strains of *S.pneumoniae* were moderately adhesive. Index of adhesion of *S.pneumoniae* 3,45±0,21. Strains of *K.pneumoniae* were moderately adhesive. Index of adhesion was 3,76±0,14. Among strains of *P.aeruginosa* 80% of strains were moderately adhesive, 20% – highly adhesive. Index of adhesion of *P.aeruginosa* was 3,77±0,15. Comparing Index of adhesion of microorganisms between Gram positive (3,44±0,33) and Gram negative (3,76±0,14) revealed that Gram negative microorganisms had higher Index, p=0,002525. Comparing Index of adhesion of microorganisms between *S.aureus, S.pneumoniae, K.pneumoniae, P.aeruginosa* using Kruskal-Wallis ANOVA by Ranks identified that the highest index was in *P.aeruginosa* (H (3,51)=14,35, p=0,0025)).

The research showed that strains of *K.pneumoniae* and *P.aeruginosa* showed higher Index of adhesion comparing with strains of *S. aureus* and *S.pneumoniae.* Among four microorganisms the highest Index was in strains of *P.aeruginosa,* which consider that this microorganism has the highest ability to form biofilms.