



79th



International
Scientific
Conference of
the University
of Latvia

ASSESSMENT OF BACTERIOPHAGE EFFECT IN THE BACTERIA CULTURE ISOLATES FROM PATIENTS

Basoka Anastasija, Līduma Iveta

Summary

Background. Infections related with provision of medical care are one of the most important problems in the modern health-care system. The continuously growing resistance of infection causes against antibiotics requests that physicians apply alternative forms of fight. Bacteriophage (phage) therapy is one of them.

Aim. To evaluate bacteriophage lytic activity from clinical materials *in vitro*.

Methods

An experimental *in vitro* study was made. During the study period, 36 samples were collected, 12 KONS, 12 *E. coli* and 12 *S. aureus* samples. Two bacteriophage mixtures “Otofag” and “Dermofag” were used. The lytic effect of bacteriophages was determined using a microorganism sensitivity test. The presence of the lytic zone was assessed. Positive bacterial lysis and partial bacterial lysis were positive results. Lack of lytic zone or resistance of stem against phage was considered as negative result. Results were compiled in MS Excel 2016 and IBM SPSS Statistics v22, and later graphs were created. The place of the study is Joint Laboratory for Microbiology and Pathohistology, Hospital of Traumatology and Orthopedics.

Results and conclusion

The lytic effect of bacteriophages was different using mixtures of two types of bacteriophages. The greatest lytic effect was observed for the “Otofag” mixture (92% or n=22), while for the “Dermofag” mixture (88% or n=21). The greatest lytic effect was observed for gram-negative microorganisms. In all cases, complete bacterial lysis was observed (100% or n=12). Full bacterial lysis and partial bacterial lysis are considered a positive effect. Gram-positive microorganisms showed a positive lytic effect in 92% (Otofag) and 88% (Dermofag). Negative effects were observed in 8% of the cases. To investigate the lytic effect of bacteriophages further studies are needed using a larger number of bacterial cultures.