



Influence of NSAIDs on the microbiocenosis of the oral cavity in animals

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In recent decades, the range of NSAIDs has expanded significantly. They are divided into classes according to their chemical nature, selectivity (by inhibiting the enzyme cyclooxygenase 1 or both isoforms), average dose efficiency, and others. However, the results of research in recent years have revealed their impact on the ecosystems' microbiota of humans and animals. The oral cavity, is an anatomical and immunological protective barrier and the most complex ecosystem, sensitive to the action of any chemical, physical or biological factors. Changes in the oral microbiota are considered as indicators of early side effects of eubiosis of the oral cavity. The subject of this study is the effect of NSAIDs on the microbiota.

Material & Methods

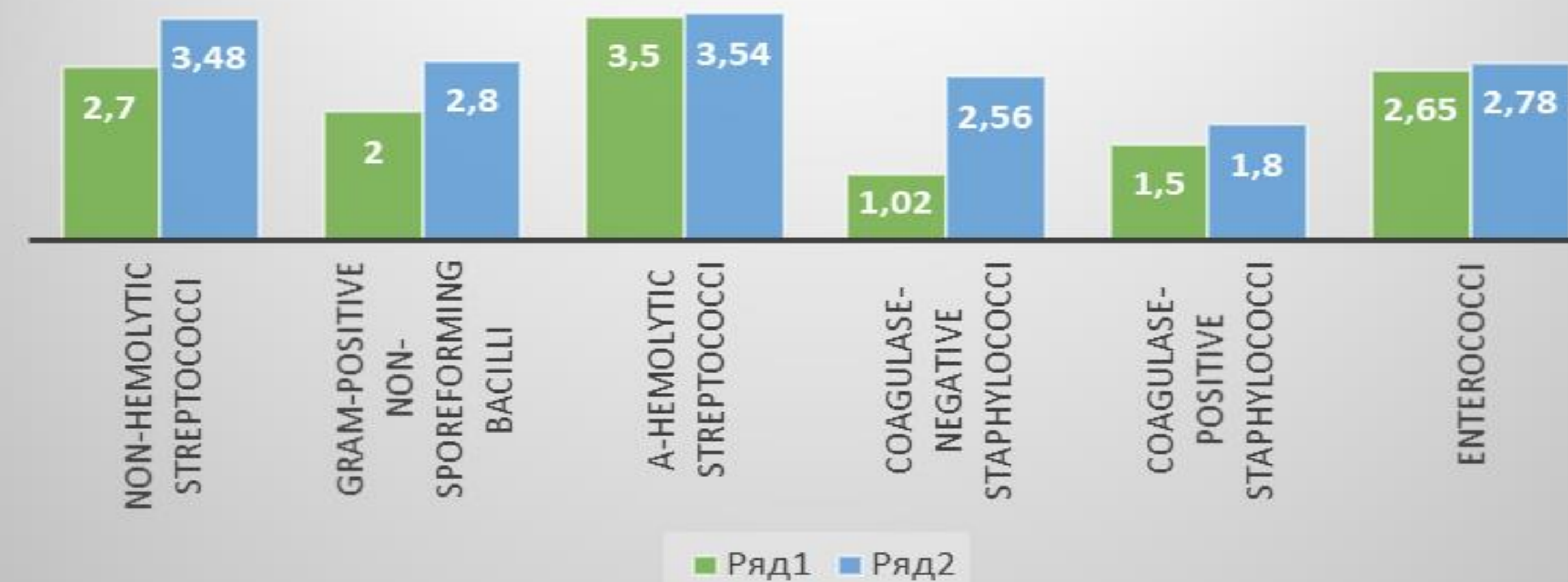
Studies of the effects of nimesulide were performed on male rats. Animals of the experimental group (n = 12) obtained nimesulide at a dose of 15.0 mg / kg intragastrically once a day for 14 days. The culture of scraping from the area of the gingival margin of rat's teeth was investigated.

Determination of the qualitative and quantitative composition of the microflora was performed by the microbiological method.

Results

According to the obtained results the changes in the state of the microbiocenosis of the oral cavity of rats in comparison with the indicators in intact animals were established. Thus, the number of non-hemolytic streptococci (3.48 ± 0.83 lg CFU / ml) increased in 1.3 times compared to intact group, gram-positive non-spore forming bacilli (2.8 ± 0.69 lg CFU/ml) - 1.4 times. The number of α -hemolytic streptococci (3.54 ± 0.71 lg CFU/ml) did not differ from the corresponding indicators of intact group. There was a 2.5-fold increase in the number of coagulase-negative staphylococci (2.56 ± 0.44 CFU/0.02 ml) and coagulase-positive staphylococci (1.8 ± 0.29 lg CFU/ml) in 1.2 times compared with the control. The number of enterococci remained constant in the range of 2.65 ± 0.34 - 2.78 ± 0.44 CFU/ml. With regard to obligate anaerobes, there was a slight increase in the number of veilonels and prevotels (not more than 1% compared to the control group). Bacilli, molds and *Candida albicans* were isolated in all animals in small quantities.

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The non-selective inhibitor of cyclooxygenase nimesulide, by disrupting the metabolism of prostaglandins, causes certain physiological changes in the oral cavity, reflected in the microbiocenosis of the habitat. The changes affect the growth of quantitative indicators of normosymbionts. The imbalance of gram-positive bacteria and the appearance of coagulase-positive staphylococci indicates the risk of putrefactive processes, and the activation of gram-negative anaerobes - the destructuring of the biofilm.