Effect on cariogenic flora is the key to remineralizing therapy efficacy in treatment of initial caries (at the white spot stage). Ozone in dentistry is used as a highly effective antibacterial agent. Treatment of white spot lesions with the ozone-air mixture leads to significant increase of efficacy in non-invasive treatment of initial caries.

**OBJECTIVE:**
clinical and microbiological assessment of antibacterial efficacy of ozone therapy in treatment of caries at the white spot stage.

**MATERIAL AND METHODS:**
The trial recruited 86 patients for non-invasive treatment of caries at the white spot stage which included the complex of professional oral hygiene, medicamental treatment of white spot lesions with hydrogen peroxide 3% and chlorhexidinedigluconate 0.2%, treatment with the ozone-air mixture and application of hydroxyapatite Ca2+. Material for microbiological study was received before the treatment, after the complex of professional oral hygiene and medicamental treatment of white spot lesions conducted as well as after the treatment with the ozone-air mixture.

**RESULTS:**
Before the treatment up to 16 kinds of microorganisms on the surface of white spot lesion were detected with the following shares: S. mutans (19.9%), S. salivarius (15.1%), S. epidermidis (8.7%), S. mitis (6.5%), Lactobacillus (6.5%) and different kinds of staphylococci (10.8%). After the complex of professional oral hygiene and medicamental treatment conducted decrease in number of cariogenic microorganisms was indicated as follows: S. mutans - from $1 \cdot 10^5$ to $1 \cdot 10^4$, S. salivarius - from $1 \cdot 10^7$ to $1 \cdot 10^6$, S. epidermidis - from $1 \cdot 10^5$ to $1 \cdot 10^4$, S. mitis - from $1 \cdot 10^4$ to $1 \cdot 10^3$, Lactobacillus - from $1 \cdot 10^4$ to $1 \cdot 10^3$. After the treatment of tooth enamel with the ozone-air mixture increase in microorganisms was not observed. The efficacy of ozone on cariogenic microorganisms exceeds significantly the efficacy of 3% hydrogen peroxide and 0.2% chlorhexidinedigluconate.

**CONCLUSION:**
It is strongly advisable to include ozone in protocol of non-invasive treatment of initial dental caries.