

## **Preliminary Abstract**

### **Oropharyngeal colonization and respiratory infections (COPD)**

#### **Protective effect obtained through mechanical mouth cleaning, using the micro result tongue cleaner**

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The close connection between the oropharynx and the bronchial system allows for consideration of the former as a possible reservoir for respiratory infections. It was possible to prove a direct relationship between the numbers of oropharyngeal aerobic gramnegative bacteria present and the seriousness of the chronic illness; the aspiration of saliva, including its pathogenic bacteria and their adhesion to the bronchial mucous membrane, is discussed in this paper.

The aim of our study was to investigate a possible protective effect obtained from consistent tongue cleaning, using the micro result tongue cleaner. The study was initially set for 14 days. On 3 days (0,7,14) we took the tongue smears of 30 patients who are currently receiving steroid therapy by inhalation. Further, provoked by the inhalation of 3% saline solution, we were able to obtain and examine bronchial secretions (both, microscopically and in cultures). Prior to each sample taking, the patients were being asked to thoroughly rinse their mouths with a 0.9% saline solution. Immediately after taking the tongue smears and obtaining the bronchial secretion samples, a total of 90 smear samples and 90 secretion samples, stored at a temperature of 4 degree Celsius, were passed over to the microbiological examination laboratory. In between the sample days, the patients were asked to thoroughly clean their oropharynx, twice a day, using the micro result tongue cleaner.

At the start of the study, we located pathogenic bacteria in 13 tongue smear cultures (in 7 sporadically present, in the remaining 6 massively). There was no significant change on the 7<sup>th</sup> day, which showed 14 patients to be positive (9, respective 6), but on day 14, only 10 samples (7 respective 3) showed a positive result for bacteria.

Those results were nearly identical, regarding presence of bacteria, in the bronchial secretion samples. 12 patients showed up positive on day 0 (8, respective 4), 16 on day 7 (10, respective 6). Similar to the results obtained with the tongue smears, a marked reduction, to only 7 positive samples (5, respective 2), could be seen on day 14 of the study.

Microscopically, the presence of no additional bacteria could be proven during the duration of the study in those samples that had initially tested positive (day 0) 1 (tongue smear).

The results obtained suggest a direct connection, between inadequate oral hygiene and the presence of recidivist exacerbations caused by pathogenic respiratory tract bacteria, for chronic obstructive pulmonary disease (COPD) patients.

Through implementing strict daily oral hygiene measures, using the micro result tongue cleaner, a positive effect could be proven on decreasing the colonization of the bronchial system.

Further studies are now needed to investigate the possible impact these measures might have on the course of COPD itself.

**Proof of germs ( total number, microscopic resp. cultural ) on the MicroResult tongue cleaner and in the bronchial secretion on the different test days.**

