THE TRICLOSAN – PVM/MA COPOLYMER COMBINATION AND PERIODONTITIS. DATA FROM A CONSENSUS REPORT - PART II.

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ABSTRACT
Triclosan is currently one of the most researched antimicrobial agents of the oral cavity. A consensus meeting organized by Colgate-Palmolive Romania took place on 15 February 2008 at Athenee Palace Hilton Bucharest to reunite the conclusions of Romanian opinion leaders regarding the applicability of triclosan in dental medicine and the triclosan-PVM/MA copolymer technology. The article reflects the data issued by the consensus meeting regarding the value of triclosan as therapeutic agent of the periodontal disease. With respect to the triclosan – PVM/MA copolymer combination and periodontitis, the literature contains lots of evidence confirming the interest to include the triclosan – PVM/MA copolymer combination in periodontal disease therapy. However, the field of parallel studies using toothpastes or gels containing other antimicrobial agents is nowadays limited. A more extended research is necessary, especially concerning the correlation of in vitro with the in vivo data.

Key words: Triclosan, periodontitis, toothpaste, Colgate Total®

INTRODUCTION
The antimicrobial activity of triclosan is characterized by: 1. Activity especially against Gram–positive bacteria, and less against the Gram–negative. 2. The combination with the PVM/MA copolymer widens the antimicrobial spectrum of triclosan, by including also Gram–negative germs (Fusobacterium nucleatum, Porphyromonas gingivalis, Tannerella forsythia and Actinobacillus actinomycetemcomitans). 3. No in vivo resistance to Triclosan was reported so far (same as for chlorhexidine). 4. The effect persists even after teeth brushing (same as for chlorhexidine). The most interesting aspect is the influence of the triclosan – PVM/MA copolymer combination on the relation between the supra- and subgingival bacteria, thus enabling an answer to the question: is the destruction of supragingival plaque sufficient to stop the accumulation of the subgingival plaque? Indeed, improvement in
this direction is possible, if the periodontal depth of the site does not exceed 5 mm.

A few master clinical studies on the effect of the triclosan – PVM/MA copolymer combination against periodontitis can be mentioned. In a split–mouth clinical trial in 1997 including 16 subjects, the periodontal parameters were the probing depth (PD), the bleeding index (BOP), the gingival index (GI), the plaque index (PII); plaque examination in contrast phase microscopy was also performed. The test–group protocol included scaling and root planning, subgingival application of a gel containing the triclosan – PVM/MA copolymer combination and tooth brushing twice a day using a paste containing 0.3 % triclosan, 2 % PVM/MA copolymer, 0.243 % natrium fluoride, supragingival application of the gel containing the triclosan – PVM/MA copolymer combination, followed by an evaluation every 2 weeks. The same procedures were performed for the control group, but the applied substances did not contain triclosan. The result was the reduction of the inflammation, without a significant reduction of the periodontal pocket depths and of the subgingival flora in the test group.

Another double–blind, randomized clinical trial, conducted in 2004 and including 504 patients with periodontitis involved their examination after 6, 12, 24, 48, and 60 months. The registred parameters were the periodontal pocket depths (PD) and the bacteriological exam of Porphyromonas gingivalis, Prevotella intermedia and Actinobacillus actinomycetemcomitans. The protocol involved the use of tooth a paste containing the combination triclosan – PVM/MA in the test group, versus a placebo in the control group. A drastic decrease of the studied parameters, statistically significant, has been noted if the initial pocket depth exceeded 3.5 mm.

In a similar manner, a randomized, double –blind trial from 1998, involving 641 teenage patients with periodontitis and extending over 3 years, used a triclosan – PVM/MA toothpaste against a control paste in the control group. The noted parameters were: the periodontal pocket depths (PD), the alveolar bone loss, the presence of subgingival tartar. The 3-years follow–up results were the absence of side effects in the test group and a smaller loss of periodontal tissue compared to the control group.

Finally, a randomized, double–blind trial, extending over 24 months, involving 60 patients with chronic marginal periodontitis, all smokers, included, for the test group, scaling and root planning, followed by subject re–evaluation every 6 months. During this period, subjects were advised to use a tooth paste containing the combination triclosan – PVM/MA, versus a regular fluoride toothpaste in the control group. The noted parameters targeted the periodontal hygiene (the plaque index PlI, the tartar index, the gingival index GI, the bleeding index BOP) and the periodontal health (the width of the keratinized gingiva, the gingival recession, the periodontal pocket depths PD, the alveolar bone reduction, the furcation involvement, the tooth mobility). The results have shown that the result of periodontal therapy is better maintained in the patients belonging to the test group.

In conclusion, the literature contains evidence confirming the interest to include the triclosan – PVM/MA copolymer combination in the periodontal disease therapy. However, the field of parallel clinical studies using toothpastes or gels containing other antimicrobial agents is currently scarce in the literature. A more extended research is necessary, especially concerning the correlation of the in vitro with the in vivo data.

Excerpt from the Consensus Report conclusions, regarding the use of triclosan for treatment of the periodontal disease:

- Triclosan is characterized by a wide-spectrum antibacterial action on the specific oral pathogens, along with an anti-inflammatory activity involving several cellular pathways.
- The combination of triclosan with the PVM/MA copolymer and fluoride proved to be effective in controlling both supra- and subgingival periodontal pathogenic microflora, as well as the cariogenic microflora.
- The presence of the PVM/MA copolymer stabilizes the triclosan and increases both its adsorption on the oral hard and soft tissues, as well as its concentration in saliva and in dental plaque. The PVM/MA copolymer favors triclosan’s remanence and improves its diffusion. The clinical results demonstrate an anti-plaque, anti-tartar, and anti-gingivitis effect, in correlation with the presence of the PVM/MA copolymer.
- Given the dual mode of action of triclosan, and the effects of PVM/MA copolymer’s presence, the triclosan - PVM/MA copolymer combination has proven its effectiveness in controlling the symptoms of gingivitis, as well as in the prophylactic and maintenance phases of the treatment of periodontitis.
- The long term use of triclosan is efficient and safe, for both patients and environment, does not account for major side effects, for bacterial resistance, or for disbalancing the oral cavity microbial ecosystem.
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REFERENCES