



Effect of triclosan containing-dentifrice on subgingival microbiota in children from generalized aggressive periodontitis parents.

Gabriela M. Bonilha*, Mabelle F. Monteiro, Aurélio A. Reis, Renato C. Casarin.

Abstract

Generalized aggressive periodontitis (GAgP) cause a rapid and severe destruction periodontal tissues and it is characterized by an altered microbiological profile and familial aggregation. Studies involving children from GAgP individuals identified early clinical and microbiological changes in these individuals, suggesting that this aspect could be related to disease susceptibility. The aim of this study was to evaluate the effect of Triclosan toothpaste in the concentration of periodontopathogens present in the subgingival biofilm in children from GAgP parents, compared to children from periodontally health parents. Subgingival biofilm were collected from incisors and first molars. The bacterial DNA were extracted and the total amounts of *A. actinomycetemcomitans* (Aa), *Fusobacterium nucleatum*, *P. gingivalis* and *T. forsythia* were evaluated by qPCR. At baseline, children from GAgP parents presented higher plaque index (PI), gingival index (GI), and bleeding on probing (BoP) as well as higher concentration of Aa subgingivally. The PI was controlled by both toothpastes. Triclosan Toothpaste reduced the GI for both groups and additional reduction in PD and BoP were demonstrated in the GAgP group. No effect of triclosan toothpaste was observed in pathogens concentration. In conclusion, Triclosan toothpaste was more effective than placebo toothpaste to control the clinical condition in children from GAgP parents, however both treatments did not change the microbiological condition.

Key words: Triclosan, aggressive periodontitis, subgingival microbiology.

Introduction

- GAgP is a multifactorial disease characterized by the familial aggregation of cases¹;
- Previous studies have demonstrated alterations on the clinical conditions and microbial profile on children from GAgP parents, situation that can be related to risk and susceptibility to disease²;
- The use of antimicrobial associated to plaque control could be an interesting approach to control the precocious alterations observed on that population³;
- Triclosan toothpaste has antimicrobial properties, it is commercially available, and it has an easy-to-use and secure form of application;
- This study aimed to evaluate the use of Triclosan toothpaste to control the clinical and microbiological condition in children from GAgP parents, compared to children from periodontally health parents, in a cross-over placebo-controlled clinical trial.

Results and Discussion

Table 1 Demographic, clinical and microbiological condition at baseline in children from Health and GAgP groups.

		GAgP (n=15)	Health (n=15)
Gender (%fem)		60%	40%
Age (years±SD)		9.2±1.7	9.0±2.0
PI (%±SD)		36.2±14.7 &	25.1±13.1
GI (%±SD)		10.4±4.7 &	7.5±5.3
PD (mm±SD)		1.7±0.4	1.6±0.6
BoP (%±SD)		25.3±7.0 &	17.9±11.4
Subgingival biofilm (log ₁₀ [] ±SD)	<i>A. actinomycetemcomitans</i>	2.6±2.0 *	1.7±1.7
	<i>P. gingivalis</i>	1.1±1.7	0.3±1.1
	<i>T. forsythia</i>	0.1±0.5	0±0

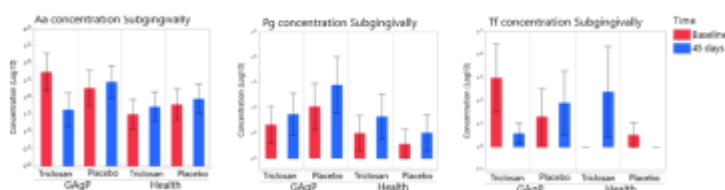
Symbols indicate statistical difference between groups (&T -Student test and *Mann-Whitney test, p<0.05). PI – Plaque Index; GI – Gingival Index; PD – Probing Depth; BoP – Bleeding on probing; SD – Standard deviation;

Table 2 Clinical data of baseline and 45 days after the use of Triclosan and Placebo toothpaste per group.

			PI (%±SD)	GI (%±SD)	PD (mm±SD)	BoP (%±SD)
GAgP	Triclosan	Baseline	30.8±15.8	9.6±5.2	1.8±0.3	26.4±11.4
		45 days	24.7±12.0*	7.1±4.1*	1.5±0.4#	22.8±8.9*
	Placebo	Baseline	34.1±17.0	10.6±5.6	1.7±0.4	24.2±12.5
		45 days	27.7±11.1*	10.4±8.1	1.6±0.6	25.5±10.9
Health	Triclosan	Baseline	26.5±14.2	8.4±5.2	1.6±0.6	17.6±13.4
		45 days	20.1±13.4*	5.3±4.4*	1.6±0.6	17.5±9.5
	Placebo	Baseline	26.0±12.9	6.5±5.8	1.6±0.6	18.6±10.2
		45 days	22.1±11.7*	6.6±5.3	1.3±0.8	19.1±15.3

Symbols indicate statistical difference intragroup per treatment (#ANOVA two-way t-test and *Wilcoxon test, p<0.05). PI – Plaque Index; GI – Gingival Index; PD – Probing Depth; BoP – Bleeding on probing; SD – Standard deviation;

Figure 1 Effect of plaque control using placebo and triclosan toothpaste in the bacterial concentration in subgingival biofilm.



Conclusions

In conclusion, the triclosan toothpaste demonstrated to be more efficient than placebo toothpaste to control the clinical condition in children from GAgP parents, despite no microbiological benefits.

Acknowledgement

PIBIC/ CNPq for the grant of scientific initiation.

¹ Armitage GC. Development of a classification system for periodontal diseases and conditions. *Ann Periodontol.* 1999 Dec;4(1):1-6.

² Monteiro M, Casati MZ, Taiete T, et al (2015) Periodontal clinical and microbiological characteristics in healthy versus generalized aggressive periodontitis families. *J Clin Periodontol* 42:914–921.

³ Riley P, Lamont T (2013) Triclosan/copolymer containing toothpastes for oral health (Review) *Triclosan/copolymer containing toothpastes for oral health.* 12–15.