

Introduction

Early childhood caries (ECC) can be a particularly severe form of caries, beginning soon after dental eruption, developing on smooth surfaces, progressing rapidly and having a lasting detrimental impact on the primary dentition. *Streptococcus mutans* are the predominant microorganisms associated with the development of caries. The number of carious lesions and other retention sites in the mouth, are thought to influence microbial colonization in a negative way. *Streptococcus mutans* has been frequently associated with the development of caries in children, changes in its salivary levels can be considered as a biomarker of the progression or arrest of early childhood caries. Therefore, the aim of this study, was to evaluate salivary *Streptococcus Mutans* levels as risk biomarkers in the different stages of dental treatment in children with Early Childhood Caries

Methods:

Eighty-nine children with ECC attended at the post graduate Pediatric Dentistry Clinic of the University of Chile were analyzed. Saliva samples were taken at the beginning and after preventive and rehabilitative treatment. Salivary *Streptococcus Mutans* levels count was carried out using the Westergreen test.

The preventive treatment consisted of oral hygiene, dietary counseling, topical fluoridation and sealants. The rehabilitative treatment included composite/glass ionomer restorations and preformed posterior stainless steel crowns.

The unstimulated whole saliva was collected in sterile Falcon tubes on dental chair under resting condition. The samples were sent to the Microbiology Laboratory of the University of Chile School of Dentistry to be studied. *Streptococcus Mutans* were enumerated as colony forming units (CFU) and grouped into three risk categories: low risk ($>10^5$ CFU/ml), moderate risk (10^5 CFU/ml - 10^6 CFU/ml) and high risk ($<10^6$ CFU/ml).

To determine statistically differences between the microbiological levels in the different stages of the treatment, the Wilcoxon test was used. To evaluate the relationship of the variation of risk levels according to SM with the different treatments carried out, the chi square test was used.

Results:

The pre- and post- treatment *S mutans* levels are presented in Tables 1 and 2. Statistically significant differences were found when comparing the salivary *S.Mutans* concentrations at the beginning and after the preventive treatment ($P < 0.05$) and at the beginning and after the rehabilitative treatment ($P < 0.05$), as well as in the concentrations between both treatments ($P < 0.05$). Significant differences were found between the initial concentrations and after both treatments. Figure 1 shows the distribution of SM levels in the different stages of treatment.

Table 1. Pre- and post preventive treatment levels of *Streptococcus Mutans* according to different risk categories.

	<i>S mutans</i> level according to risk categories				P Value
	Low Risk	Moderate Risk	High Risk	Total	
Pre- Preventive Treatment	45 (50,56%)	27 (30,34%)	17 (19,10%)	89 (100%)	*0,003
Post-Preventive Treatment	63 (70,79%)	22 (24,72%)	4 (4,49%)	89 (100%)	

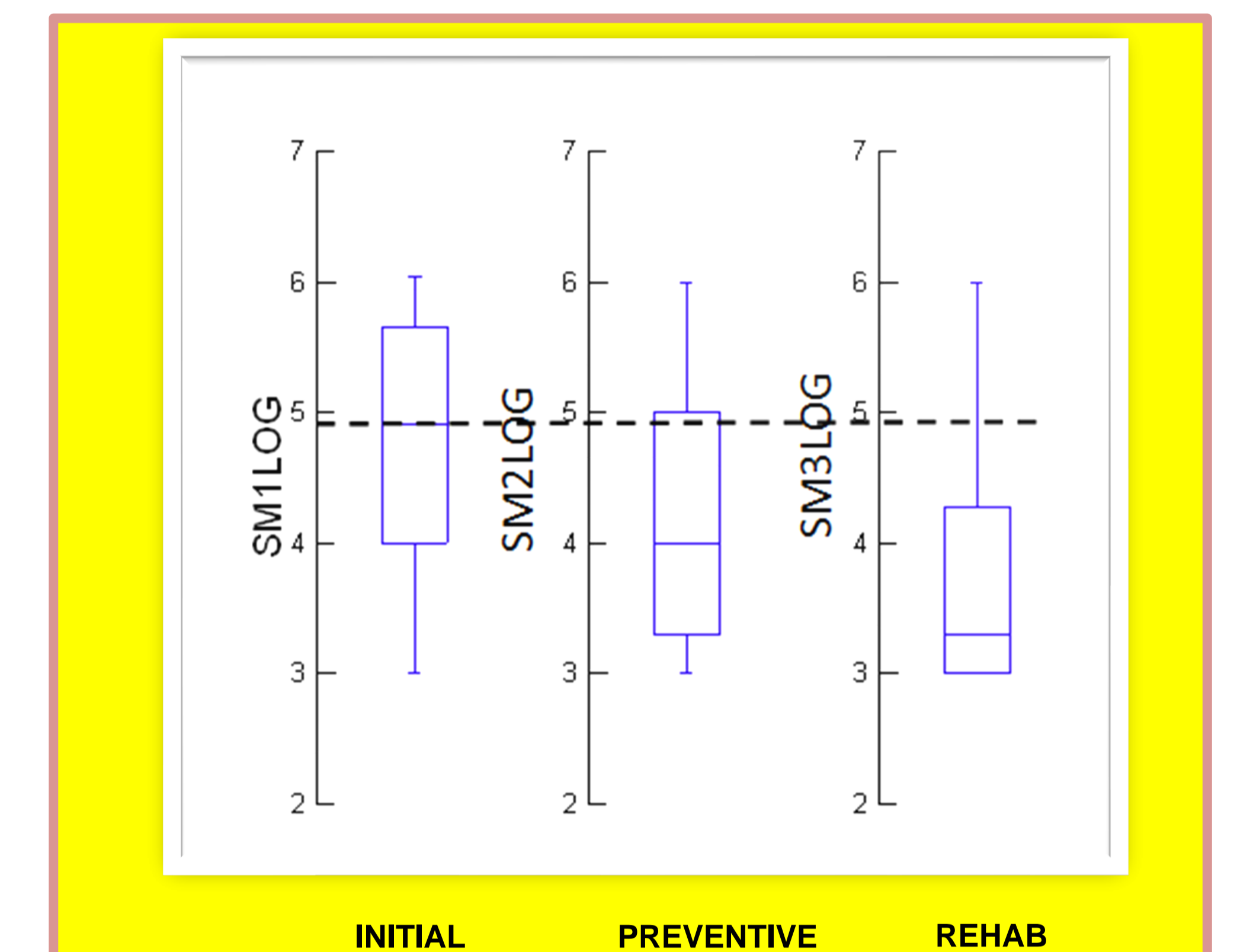


Figure 1. Distribution of salivary *S.Mutans* in the different stages of treatment

Table 2. Pre- and post rehabilitative treatment levels of *Streptococcus Mutans* according to different risk categories.

	<i>S mutans</i> level according to risk categories				P Value
	Low Risk	Moderate Risk	High Risk	Total	
Pre- Rehab Treatment	45 (50,56%)	27 (30,34%)	17 (19,10%)	89 (100%)	*0,000
Post- Rehab Treatment	73 (82,02%)	15 (16,86%)	1 (1,12%)	89 (100%)	



Conclusión: The levels of Streptococcus mutans analyzed constituted a risk biomarker during treatment in children with ECC and therefore, could be used to monitor the evolution of the disease.