

Relationship between Salivary pH/ Buffer Capacity and Dental Caries in School Age Children.

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Abstract

This research aimed to determine the pH and buffering capacity of saliva of school children with caries, as well as investigate the relationship between these variables and dental caries.

Key words: saliva, dental caries, pH.

Introduction

According to recent studies, the carbonic anhydrase isoenzyme VI (CA VI) seems to be one of the key enzymes in the oral physiology in humans and animals^{1,2,3}. VI AC is the only way isozyme which may be secreted into the saliva in order to provide a larger buffer capacity as well as promote retention HCO_3^- level in salivary glands. The high pH of the saliva would be necessary to maintain the appropriate medium for the plurality of enzymes (including proteases), which are present⁴. Previous studies have demonstrated that BC VI has a remarkable role in protecting teeth against dental caries.

Results and Discussion

In the first part of this work, we evaluated the pH and buffering capacity of saliva. The DMF index of the decay school group was 4,42. Kappa statistic was calculated, and obtained the concordance coefficient Inter examiner 0,9050% and 0,6846% Intra examiner. The pH of saliva analysis showed no difference between the decay with groups ($8,172 \pm 0,622$ N=22) and caries free ($8,155 \pm 0,509$ N=21), $p=0,92$. However, the analysis of buffering capacity, showed that there is difference between the decay with groups ($40,495 \pm 14,952$ N=22) and caries free ($54,371 \pm 12,322$ N=21), $p=0,0019$, having presented caries free group significantly higher value. The correlation analysis showed a significant negative correlation between pH and dental caries ($r=-0,4243$, $p=0,0491$).

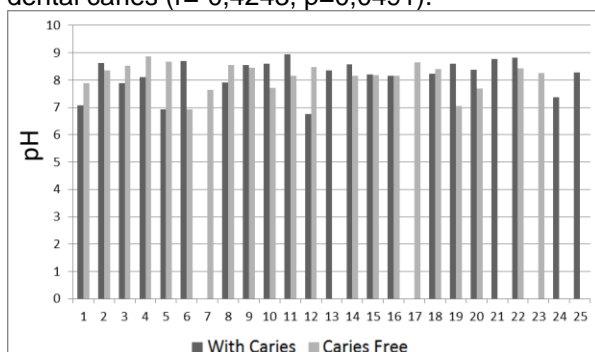


Figure 1: Salivary pH expressed as pH units for caries (n = 22) and caries-free children (n = 21).

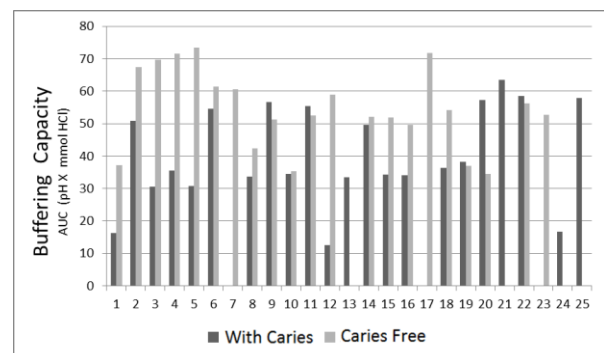


Figure 2: salivary buffer capacity for caries (n= 22) and without caries-free children (n= 21)

Conclusions

In conclusion, the higher buffer capacity of saliva of caries-free children may provide more acid neutralizing effect of the oral cavity and consequently a higher protection against dental caries.

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