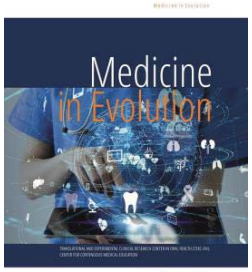
Correlation of salivary ph and tooth decay at the pediatric population



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Abstract

Early from the affected tooth to the surrounding soft tissues, resulting in swelling and inflammation in highly childhood caries (ECC) is the most usual oral disease in children. It affects approximately half of children worldwide and incurs enormous societal ECC leads to sustained demineralization of enamel and dentin, and the infection can spread progressed cases. Food and drink play a critical role in the integrity of saliva samples. Salivary pH directly impact an individual's dentition through chemical dissolution whether the demineralization is erosive or cariesbased. After eating or drinking, particulate matter may be left in the oral cavity having the potential to influence salivary pH levels or viscosity.

Keywords: early childhood caries, salivary pH, oral health, dental caries

INTRODUCTION

Objectives:

The aim of this review was to evaluate the changes in salivary ph and oral health at the pediatric pacients after intake diffrents foods. The following review will present that saliva is improbable to be a substitution for traditional diagnostic specimens in many situation.

Good oral health is an essential and integral component of good general health. Although enjoying good oral health ensures having more than healthy teeth, many children have inadequate oral and general health because of active and uncontrolled dental caries. Despite the fact that the prevalence of dental caries has declined over the past decades, ECC remains one of the most common chronic diseases of childhood; especially in developing countries and some minority community in the western world. Yet, little attention and few resources have been spent to understand the nature of this dreadful disease.

The ECC is a virulent form of caries beginning soon after the eruption of primary teeth, develops on smooth surfaces, progressing rapidly, and with a lasting detrimental impact on the dentition [1].

Whilst it is desirable that a patient should be managed in primary care there will be occasions that a referral to an oral medicine specialist in secondary care is required. In such circumstances the criterion must involve communication of all the relevant clinical information and an indication of the urgency of need for assessment.

While bacterial diversity and acid production obviously imparts effects in the mouth (for better or worse, which will be discussed in greater detail below), saliva provides a host of therapeutic and palliative effects in the maintenance of oral health, providing key functions such as: antimicrobial benefits (e.g. antibacterial, antifungal, antiviral) Cleansing, debridement, and carbohydrate clearance), water balance and pH regulation, source of mineralizing ions to counter demineralization processes, deposition of biofilms to limit bacterial adhesion and acid diffusion, initiation of digestive process.[2]

The salivary ph is an exciting and expanding field of research. Salivary ph is crucial to health as it can cause both oral and systemic diseases. It rests within biofilms throughout the oral cavity and forms an ecosystem that maintains health in a state of equilibrium. However, certain imbalances in this state of equilibrium allow pathogens to manifest and cause disease. Disruption of the salivary ph leads to dysbiosis. Identifying the salivary ph in health is the first step of human most research, after which it is necessary to understand the role of the salivary ph and the buffering capacity in the alteration of functional and metabolic pathways associated with the diseased states.

It is recognized that causes of caries include microorganisms in the mouth and host factors. The oral cavity is one of the most diverse and complex microbial environments. Some studies demonstrated that oral plaque film has high relevance in dental caries. The acid produced from bacteria break the balance of tooth mineralization and demineralization and the body have no rapid response to pH changes, which lead to organic degradation. Saliva is the main microenvironment of oral microorganisms, and to some extent, saliva microorganism determines the structure of plaque. Salivary protein has a crucial role in monitoring health status or monitoring disease. It was reported that the proteins in saliva could modulate the balance of oral health and homeostasis, maintain a stable ecosystem, and inhibit the growth of cariogenic bacteria. [3]

Review:

Salivary pH a Risk Markers for Early Childhood Caries (ECC)

A lot of studies says that it is generally accepted that the caries process is supervised largely by a natural protective mechanism implicit within the saliva. The salivary flow, dilution, pH, buffering, and remineralizing capacity of saliva are admited as the critical factors that affect and control the progression and regression of the caries process.[4]

The use of saliva as a biospecimen has greatly expanded the integration of biologic data into research studies conducted across a wide range of scientific disciplines.

Salivary PH variations and dental caries risk:

The key in the management of dental caries is addressing the causative factors, both general and local, especialy obtaining a neutral oral pH.

Connections between the pH values and the prevalence of caries have been pointed out, the influence of local and general factors, as well as the impact of pH variations upon the tooth structure. An acidogenic oral environment results in an imbalanced demineralization and remineralization process, with a multiplying community of acidophilic bacteria.

It is generally accepted that the caries process is controlled largely by a natural protective mechanism implicit within the saliva. If the oral environment is favorable, saliva can contribute to the strengthening of the tooth by supplying the components known to help and build strong apatite structure.[5]

Salivary pH and buffering capacity to prevent pediatric caries.

The present review was aimed at risk prediction for ECC by assessment of salivary pH and buffering capacity. The ability to predict an individual's risk for caries would offer a potentially huge natural way to promote better oral health. Saliva serves as a first line of both non-specific and specific defense in the oral cavity against a number of diseases. Various caries risk assessment models were proposed with salivary analysis as a main component.

The pH of stimulated saliva a correlation with the oral health to pediatric dentistry compare to the adults.

Positive correlation was reported between salivary pH the increase in salivary pH mean is usually accompanied by reducing dental caries this is in accordance with other. However, this could be explained by the fact that need of treatment in children will lead to more advanced carious lesion which is a good environment for the growth of acidogenic microorganisms. So, more acidic salivary pH was found in children than in adults. [6]

Positive correlation was reported between salivary pH and salivary flow rate, this comes in agreement with previous studies. Although this correlation was statistically not significant in children and adults but it was highly significant in the total sample. This may be attributed to that saliva in sufficient quantity had a cleansing and neutralization effect.

For children and adolescents, low buffering capacity was associated with a decrease in dental caries, not an increase in dental caries, as we had presupposed. For older adults, a low stimulated salivary flow rate was associated with increased dental caries. Resting salivary pH was statistically significant overall, but not within the specific age groups.

One studies show that a low resting salivary pH was not associated with higher caries experience. However, resting salivary pH was significant overall. Resting saliva bathes the oral cavity 90 percent of the time, and its pH usually is lower than the pH of stimulated saliva.

The pH of saliva plays an important role in people's oral health

The pH of saliva has a considerable impact on oral health, as it is a factor in the protection against tooth decay. It should range between 6.5 and 7 to maintain the balance for good oral health. [7]

The mouth is an ecosystem that, like other parts of the body, requires a balanced pH. When sugary and acidic foods are consumed very frequently throughout the day, salivary pH becomes unbalanced because bacteria metabolise sugars and produce acids, which increases the risk of decay.[8]

Salivary Viscosity in Relation to Oral Health

Saliva is a unique biologic fluid produced by different salivary glands. It is composed of approximately 99% water and 1% protein and salts. Concerning periodontal diseases, studies reported that subjects with viscous saliva are at higher risk for periodontal disease. Salivary viscosity was significantly higher among individuals with increased caries severity compared with caries free ones.

The possible clarification is that when salivary viscosity increased that mean reduction in water content with an increased salivary thickness because the rate of production is low. Salivary secretion whose related capacity is compromised is less capable of flowing freely to oral sites where its protective functions such as clearance would be affected which is essential for removal of food debris and bacteria thereby increasing the susceptibility to dental caries. From these results we can suggest that the effect of increased salivary viscosity is more obvious regarding dental caries, but unpronounced effect was recorded regarding gingival inflammation.[9]

CONCLUSIONS

Saliva is an essential factor in the maintenance of oral health and salivary parameters are therefore taken into account when assessing caries risk, as well as changes in salivary flow rate and composition can be utilized to assist in the diagnosis of various oral and systemic diseases.

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