

The Importance of Homeostasis in Oral and Systemic Health

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Abstract:

Oral homeostasis is governed by various conditions in the oral cavity such as saliva, which is composed of various beneficial substances, and by the microbiota, which is a reservoir of microorganisms, and when these are modified, homeostasis of the oral cavity is altered and dysbiosis is generated that they can lead to oral diseases such as gingivitis, periodontitis and / or caries and can also favor the development of systematic diseases caused by fungi, bacteria and viruses like CoV-2.

Introduction:

Homeostasis is a set of self-regulating phenomena, which result in maintaining a relative constancy in the composition and properties of the internal environment of an organism. The microbiome or genome of the microbiota of an organism is one of the two sets of genes that this organism possesses and that codes for the genes of the microorganisms that it houses inside; the other set codes for the organism's own genome. Furthermore, this microbiome usually has a greater number of encoded genes than the genome itself; the best example is the human being whose genome codes for approximately 23,000 genes while its microbiome codes for approximately 3 million genes. Also, it is defined as the total number of microorganisms that make up the microbiota and its genetic material, which should not be confused with the microbiota that is the existing microbial population in the body. 2 Dysbiosis (also called dysbacteriosis) is the imbalance of the microbial balance of the normal microbiota, due to quantitative or qualitative changes. Homeostasis depends on a state of eubiosis when the microbiota, theoretically "normal" and "balanced", presumably fulfills all the requirements so that we can benefit from its effects on health at the metabolic, immune, neuronal and protective barrier levels, proper of a healthy individual. (FIGURES 1, 2)



FIGURE 1

Text:

Saliva is a component of the oral cavity with a secretion of 1 to 1-5 liters per day. It can be serous, mucous or mixed. Secreted by the parotid, sublingual, submaxillary glands respectively. And it also contains electrolytes such as phosphates, sodium, potassium, magnesium, calcium, bicarbonates, enzymes, proteins, mucin and immunoglobulins.³ All of these compounds maintain oral homeostasis, but there is also the microbiota, which are microorganisms that can be altered when modified. Oral homeostasis, due to modifications in the oral environment, to the change in salivary pH from neutral to acid, lack of hygiene or poor oral hygiene, favor the growth of pathogenic bacteria that cause disease in the gums and teeth. But also the oral cavity is the entrance route and first barrier of diffusion of microorganisms towards the tonsils, pharynx, larynx, esophagus. Therefore, it is important to reduce the abnormal and pathogenic mycorbiota load that could favor the development of systematic diseases.

In past editions of the magazine of the Mexican Dental Association they published two articles that address the susceptibility and vulnerability of people who, due to activity and systemic condition, are prone to developing injuries and / or diseases due to the alteration of oral and systemic homeostasis. These two groups of patients at the ends each; The one who practices sport 6.7 amateur or professional and the patient immunosuppressed for being in protocol for organ transplantation. The patient who practices sports is at risk of developing oral lesions due to the intrinsic forces generated by muscular contracture not only of the muscles that are exercised during sports practice but also of the facial, perioral and chewing muscles that generate overloads in the teeth and temporomandibular joint, added to xerostomia than by dehydration that also occurs due to demand and physical wear during sports. And in the other group of patients on protocol for organ transplantation, they present with an immunosuppression that makes them susceptible to developing infections by opportunistic microorganisms, both local in the oral cavity and systemic in other organs. Both groups of patients could be said to have altered homeostasis for different reasons, but both are vulnerable and susceptible to developing injuries and diseases. That is why we must give specific attention to each patient and give them the pertinent recommendations so that they maintain their homeostasis, according to their age, sex, activities, systemic alterations, and medical-family history of systemic health. It makes vulnerable to developing diseases caused by VIRUSES; HIV, HEPATITIS, HERPES that are present in the oral cavity and in this time of pandemic now joined to VOC-2.

Viruses have been around since the beginning of humanity, but cannot live on their own, and require a cell to replicate. There are a wide variety of viruses that can replicate in any biological group; prokaryotes, protists, fungi, plants, animals.

And in the last 25 years we have had an attack of various diseases caused by viruses and that have affected large groups of populations. And now there was a pandemic due to the CoV-2 4 virus, which is from the family of coronaviruses that is present in animals in which it does not cause disease, but when it has passed to humans, it has caused serious diseases such as EL MERS , SARS, CoV, and the one

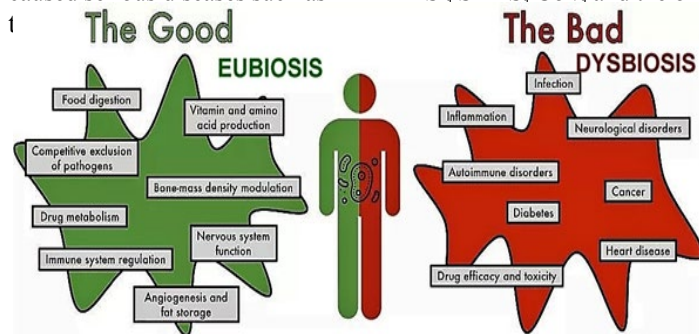


FIGURE 2

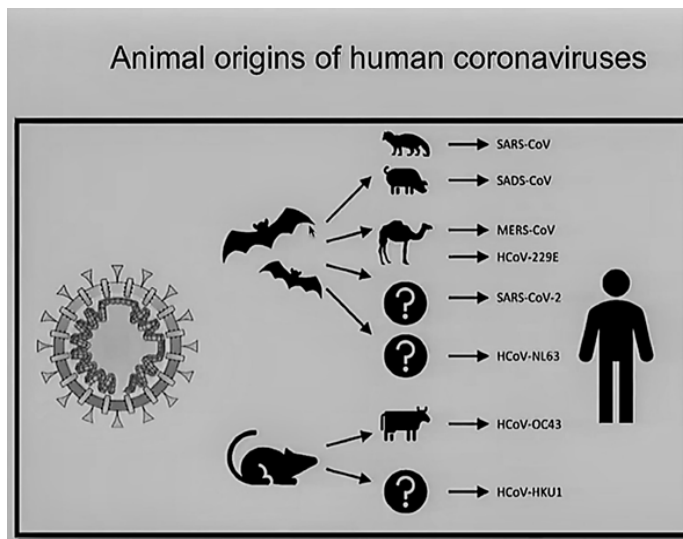


FIGURE 3

So today more than ever we must have a more detailed evaluation of each patient we serve day by day to help them with specific recommendations to maintain oral homeostasis and thus reduce the risk of developing local and systematic diseases. The objective of the recommendations to each patient is aimed at caring for the normal beneficial microbiota and reducing the abnormal and pathogenic microbial load of bacteria, fungi and viruses. In the particular case of CoV-2, it has been studied that to reduce the viral load that accumulates in the mouth and throat, mouthwashes and gargles should be made with hydrogen peroxide at 1% and / or iodopovidone at 0.2% for one

minute in addition to the previous oral hygiene with the use of dental floss, dental brushing, tongue cleanser, internal cheek and palate. In addition to preparing ourselves in the specific part of operative and oral rehabilitation treatments, we must see the patient with a broad systematic vision to assess his risks of susceptibility and vulnerability that led him to alter the homeostasis and develop the conditions where we intervene to carry out the treatment. More appropriate and also make recommendations for the patient to improve their habits that lead to reestablish homeostasis and regain their oral health and systemic.

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