



INCIDENCE OF BACTERIA IN DENTAL CARIES AND PERIODONTITIS

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ABSTRACT:

Dental health refers to all aspects of oral health and function, especially teeth and gums, which are linked to overall health and well-being in many ways. If left untreated it can lead to other more harmful diseases that may seriously affect quality of life and shorten life expectancy. A scientific study has clearly shown the direct and detrimental role of gum disease in many serious and congenital diseases. It has been speculated that by the end of the 1st century, dental caries and periodontal disease were the most common oral diseases affecting people throughout their lives, reflecting geographical differences, socio-economic patterns, and severity of distribution.

KEYWORDS : Dental health , oral health and function.

INTRODUCTION:

Major oral diseases such as dental caries and periodontal disease have been known for a long time. According to the World Health Organization, nutritional status, tobacco smoking, alcoholism, oral hygiene, stress, some systemic diseases, etc. are related to a wide range of oral diseases that have common risk factors for oral. Diseases The interest in understanding the relationship of dental infections to various systemic diseases has been shown to be important, which can increase the importance of awareness and oral health which is often overlooked in India. It is well known that diabetes is the only common systemic disease that is clearly associated with periodontal disease and that diabetes is associated with gingivitis or periodontitis. Therefore, systemic disease, diabetes is one of the topics to consider in the study of dental disease related to the presence of sugar in the blood and urine due to insulin deficiency.

PREVALENCE OF DENTAL DISEASES:

Historically, dental caries and periodontal disease are considered to be the biggest burdens for oral health in the world. Currently, the distribution and severity of oral diseases varies in different parts of the world. By the end of the 20th century, dental infections were associated with a mortality rate of 10-40%, and the role of bacteria in this process was not recognized until the 20th century.

Oral Microbiota:

Involved in the development of dental diseases such as oral cavity, bacterial dental disease and periodontitis, the different surfaces of the oral cavity are constantly bathed in saliva and they represent different ecological niches in which different inhabitants exist. Different surfaces exhibit different factors such as environmental characteristics, temperature, pH, nutrients, redox

potential, oxygen and adhesion ligands which make it a unique microbial habitat. According to the World Health Organization, the burden of viral diseases is the highest in the world. Oral microbiota is composed primarily of bacteria, but also includes fungi, viruses, mycoplasmas, protozoa, and archaea. It is estimated that there are more than 700 cultivable and non-cultivable species in the oral cavity. It has been found that any particular individual may have approximately 100-200 species, of which about 50 species were typically present in the periodontal pocket. Different species of Actinomycosis, Lactobacillus, Fusobacterium and Bacteroids differ in the stage of dental disease like dental plaque. Different collections of bacteria were found in the peri-apical abscess formed by the progression of dental worms.

The presence of nutrients, epithelial breakdown and secretions make the mouth a variety of bacteria friendly environment. This is different from other human microbial habitats due to the presence of two types of surfaces for microbial colonization, one is shedding (mucous membranes) and the other is a solid surface (teeth or teeth). Oral cavity internal quality mayakrobayota's offer enormous potential for a wide range in which many g-positive bacteria of the Genesis eg., Entrokokasa, pepostreptokokasa, Streptococcus, Staphylococcus, aektinomayasesa, korinebakteriyama, yubakteriyama and lektobesilasa species, janaretivha course, aektinobesilasa, Haemophilus, bakteroidsa, kempilobektara, Species of Leptotrichia, Porphyromonus, Capnocytopaga, Privotela, Tannerella, Acnela, Treponema, Fusobacterium and Vilonela. Once the symbiotic balance between the oral cavity host and the microbiota is lost, the microbiota becomes infected. Therefore, exploring the links between clinical conditions and personal and social outcomes helps to study various aspects of oral health and also provides an opportunity to identify interventions to reduce the consequences of oral diseases.

Dental Caries and Periodontal Diseases:

Among common oral diseases, caries and periodontal disease are the two main oral pathologies that are most prevalent affecting all people throughout their lives. This is due to many factors such as multi-build up, diet, oral hygiene, genetics, environment, irregular tooth brushing, smoking, alcohol and irregular dental visits. It is also understood that periodontal disease and dental caries are the most prevalent microbial diseases mediated by dental biofilm in humans. Bacteria involved in dental caries and periodontitis produce three types of toxins, such as exotoxins, endotoxins, and volatile sulphur compounds. Dental pathology usually affects both hard and soft tissues. Although both diseases are initiated when microbes adhere to the tooth surface and form dental plaque, their effect is different. In the case of dental worms, the gradual deterioration of the enamel causes the tooth to become invasive. In soft tissue disease, calcified plaque damages the delicate gum bacterial tissues and makes them vulnerable to bacterial invasion of the periodontium.

Periodontal Diseases:

Periodontal disease is a bacterial infection that affects the structure of the tooth's supporting structures. The most common type, gingivitis, is an inflammatory condition of the gums, associated with the accumulation of bacterial plaque. Periodontal infections involve more than one bacterial species. The bacteria present in these lesions are highly complex, including Gram-positive organisms, including antinomies and streptococcal species, and Gram-negative organisms, including species of spirochetes and bactericides. The percentage of micro biota with Gram-negative aerobic species is about 2% and in periodontitis, about 113% is approximately 75% compared to healthy individuals. Tobacco use has also been found to be an important risk factor for periodontal disease, which can lead to a decrease in gingivitis. The risk of developing periodontitis is found to be higher in diabetics. Most studies clearly reveal more severe periodontal conditions in adults with diabetes than those without diabetes.

Diabetes and Dental Diseases:

According to the World Health Organization, one out of every six people with diabetes in India lives a life. The prevalence of diabetes in adults worldwide is%% and is projected to increase to 5.4% by 2025.

Countries with diabetes include India, China and the US. Women have been the most affected. India currently has 400 million more people with diabetes than men, the highest incidence of diabetes in the world, and is projected to increase to one million by 2030. Many medical conditions, especially diabetes, can be dangerous for the development of patients, more severe and progressive forms of periodontal disease. Therefore, in recent years the oral health of diabetics has been the subject of many topics.

The relationship between diabetes and insulin deficiency in diabetes and periodontitis has been studied for many years. There is currently ample evidence to suggest that diabetic insulin deficiency affects the incidence and severity of periodontitis due to the presence or absence of sugar in the blood and urine. People with diabetes have a higher risk of gum disease, especially if their diabetes is out of control. It is known that people with diabetes are twice more likely to have periodontitis than non-diabetics. Periodontal infections with gram-negative organisms significantly reduce glucose tolerance and increase the severity of diabetes. Diabetes and periodontal disease create a system in which periodontitis is exacerbated and blood glucose levels become more difficult to control metabolism leading to mutual irritability, leading to self-executing catabolic processes, including inflammation, tissue destruction, and inflammation. According to some studies, it is known that the incidence of dental worms has decreased in some sections of the population, but the incidence of periodontal disease has been found to be higher in individuals with poorly controlled diabetes.

Antibiotic in Dental Practice:

The term antibiotic was initially identified with penicillin, streptomycin, and cephalosporins, which were made primarily from certain fungi, bacteria, and other organisms, or to inhibit the growth of other microorganisms. Oral microbiota is an important reservoir of antibiotic-resistant bacteria. Antibiotics are commonly prescribed in dental clinics for the treatment of acute and chronic infections and as a prophylactic drug or remedy to prevent acute ulcerative gingivitis, and metastatic infections such as bacterial endocarditis. Single and combined medications have gained increasing importance in dental practice, but single medication therapy is indicated to reduce side effects, immunity, and costs.

Most oral infections are polymicrobial with both Gram-positive and aerobic and anaerobic bacteria Gram-positive. The incidence of antibiotic-resistant microorganisms depends on the population and the habits prescribed by the doctor. Numerous studies have shown that prescribing antibiotics such as penicillin and metronidazole is common in dentistry. Amoxicillin is the drug of choice for prophylaxis of infectious endocarditis. Ampicillin is sometimes used in the treatment of dento-alveolar infections when the mechanism of antibiotic susceptibility of causative organisms is not known and erythromycin, clarithromycin and itraconazole are used in the treatment of local invasive periodontitis.

Emergency of Antibiotic Resistance:

Improper and irrational use of antibiotics provides favourable conditions for the emergence and spread of resistant microorganisms. In developing countries, the spread of microbial resistance is usually caused by a variety of infections. Other factors responsible for microbial resistance include misuse and easy access to antibiotics, use of poor quality antibiotics and patient adherence to prescribed medication, improper infection control measures, hygiene and public health measures. Clinical factors include cultural concepts, patient demands, financial incentives, consumers and providers in the pharmaceutical industry.

The Multiple Antibiotic Resistance (MAR) index also shows the prevalence of bacterial resistance, therefore, the MAR index is considered a good tool for risk assessment as it gives an idea of the number of bacteria showing antibiotic resistance. For the rapid emergence and subsequent proliferation of immune genes, all countries are expected to use restricted antibiotics with antibiotic treatment guidelines.

Significance of Saliva in Dental Diseases:

Human saliva can be used as a tool to diagnose human disease because it contains a lot of basic information. It is a complex fluid containing salivary glands containing 99% water, dissolved inorganic ions

and numerous organic substances, which are used in laboratory and clinical studies. It is also used to determine the risk of tooth decay. Different microbiological saliva tests were performed to estimate the risk of caries. The effect of diabetes on saliva composition and function is not so obvious. Diabetic insulin deficiency is related to the presence of sugar in the blood and urine, oral manifestations, dental caries due to salivary fatty infiltration of the salivary glands, diabetes mellitus and xerostomia high chronic periodontal disease. Increased periodontal infection in diabetes is mainly due to abnormal neutrophil function and changes in the basement membrane found in the parotid gland. The high permeability of the basement membrane of the parotid gland results in an increase in the concentration of blood glucose, amylase and proteins, followed by an increase in their level in saliva.

CONCLUSION:

Antimicrobial resistance in microorganisms is now considered a major threat to public health and its control is now a global concern. While microbial resistance rates are not evenly distributed worldwide, further studies on antibiotic susceptibility patterns of periodontal pathogens in India are needed which can help in the formulation of treatment strategies? For infection control, it is recommended to check the antibiotic susceptibility of the organism from the patient's infection before prescribing antibiotics. Considering all of these factors, this study involves the detection of sugar in the blood and urine due to diabetic insulin deficiency and the possible relationship between dental caries and periodontitis in the people in the study.

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