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From Mouth to Body: The Impact of Dental Health on Systemic Wellness

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Abstract

The relationship between dental health and systemic health is complex and interdependent. (1) Poor oral health has been linked to several systemic health conditions, and vice versa. The connection between oral health and overall health has been widely recognized by healthcare professionals. Recent studies have shown that poor oral health can increase the risk of several systemic diseases such as cardiovascular disease, diabetes, and certain cancers. This highlights the crucial role that dentists play in preventive healthcare. By identifying and treating oral health problems early on, dentists can not only improve oral health but also reduce the risk of systemic diseases. This paper will explore the various ways in which dentists can contribute to reducing systemic diseases through the use of preventive measures such as regular check-ups, oral cancer screenings, and lifestyle counseling. The paper will also discuss the importance of patient education and motivation in maintaining good oral health. Through evidence-based research, this paper will demonstrate the significant impact that dentists can have in promoting overall health and reducing the risk of systemic diseases.

Keywords: Dental Health, Cardiovascular Disease, Diabetes, Regular Check-Ups

Introduction

Dentists play a critical role in the prevention and detection of systemic diseases and cancer. Regular dental check-ups and cleanings can help detect changes in the mouth that may be indicative of a wider health issue, such as oral cancer or a systemic disease like cardiovascular disease or diabetes. Through early detection and treatment of oral health problems, dentists can help prevent the development and progression of systemic diseases and cancer.

In addition to detecting and treating oral health problems, dentists can also educate their patients on lifestyle habits that may increase their risk of developing systemic diseases and cancer, such as smoking or excessive alcohol consumption. They can also provide guidance on how to reduce the risk of developing these conditions, such as quitting smoking or limiting alcohol consumption.

Dentists can also play an important role in the overall health of their patients by performing regular oral cancer screenings, which involve a thorough examination of the mouth to detect any changes or abnormalities that may indicate the presence of cancer. This can help ensure that patients receive prompt treatment and care if cancer is detected.

Method(s)

The review was conducted by searching for articles published in peer-reviewed journals and was conducted both electronically and manually. The search was initiated by using relevant keywords such as primary care, dental health, dental office, dentistry, oral physicians, etc., and was performed through various search engines such as PubMed and MEDLINE. The focus of the review was twofold: first, on the primary care interventions that can be performed in a dental clinic or office and second, on the modification of the dental education curriculum.

Dentistry and Systemic Health

The mouth is said to be the gateway to our body. Many systemic diseases have signs or symptoms that manifest in the orofacial region. From ancient times, physicians like Hippocrates and Galen have considered the tongue to be a “barometer of health”, and have emphasized on its diagnostic importance.

Several modern studies have also identified significant associations between oral health and the overall health of the body. Poor oral health is known to aggravate systemic diseases, including, but not limited to, cardiovascular diseases, Alzheimer’s disease and dementia, obesity, diabetes and metabolic disorders, rheumatoid arthritis, and several cancers. (29) For example, Pregnant women with poor oral health have been found to be at a higher risk of delivering underweight babies. (23)

However, it is important to note that such associations do not imply causation. The association could be due to confounding influences of an underlying condition. Several interrelating factors could affect the oral-systemic health connection. Inadequate nutrition can lead to dental caries, gum diseases, and oral infectious diseases. Compromised oral health can in turn affect the food choices and negatively impact food intake and nutrition leading to chronic systemic diseases. (21) Therefore, constantly monitoring all aspects of our oral health can help preemptively diagnose underlying systemic conditions and diseases.

Dentist as an Oral Physician

The American Academy of Oral Medicine defines Oral medicine as a field of medicine that deals with clinical diagnosis and non-surgical management of dental and non-dental pathologies that manifest in the orofacial region. It lies at the convergence of medicine and dentistry. This has given birth to the notion of the Oral Physician.

Dentists can be considered de facto oral physicians given their training in many of the required medical and surgical skills. Dental training already includes the ability to recognize more than 100 manifestations of genetic disorders, systemic disease, and lifestyle problems. (2)

Dentists are often called upon to provide services such as oral cancer screenings, tobacco-use cessation,

nutritional counseling and, most recently, consultation for dealing with bioterrorism (24). They also frequently undertake regular health check-ups en masse by running dental camps, conduct awareness sessions, and provide emergency consultations. This gives them the opportunity to engage with those sections of the population that otherwise has no regular access to healthcare, and assess their overall health and refer them to the appropriate specialists. (27) This puts dentists in a unique position at the frontlines of preventive primary care.

Primary Health Care Screenings and Interventions in the Dental Office

Undiagnosed diabetes

Diabetes is a serious chronic illness that can lead to complications like stroke, amputation, kidney failure, heart attack, heart failure, and death. The global diabetes prevalence in 20–79-year-olds in 2021 was estimated to be 10.5% (536.6 million people), rising to 12.2% (783.2 million) in 2045 (29). Diabetes is associated with an increased prevalence and severity of periodontitis, and severe periodontitis is associated with compromised glycaemic control.

Periodontitis and diabetes established a bidirectional relationship. Periodontal treatment has been associated with improvements in glycaemic control in diabetic patients, with reductions in HbA1c of approximately 0.4% following periodontal therapy. The dental team, therefore, has an important role to play in the management of people with diabetes. An emerging role for dental professionals is envisaged, in which diabetes screening tools could be used to identify patients at high risk of diabetes, to enable them to seek further investigation and assessment from medical healthcare providers. (26)

Sleep apnea and Obesity

Sleep apnea is a sleeping disorder that can lead to serious health problems, such as high blood pressure and heart trouble, if untreated. Untreated sleep apnea causes breathing to stop repeatedly during sleep, causing loud snoring and daytime tiredness, even with a full night's sleep. Approximately 20% of adults have some degree of obstructive sleep apnea. Men are approximately 2.5 times as likely to develop sleep apnea than women. Approximately 70% of all sleep apnea patients are obese. The increase in obesity worldwide has an important impact on health impairment and reduced quality of life. In particular, obesity has an important contribution to the global incidence of cardiovascular disease, type 2 diabetes mellitus, cancer, osteoarthritis, work disability and sleep apnea. The risk of heart failure in people with obstructive sleep apnea is 140% higher. Research indicates that 26% of people with a BMI over 30 have sleep apnea, and 33% of people with a BMI over 40 have at least moderate sleep apnea. (31).

Dentists have the knowledge and training to diagnose sleep apnea. The dentist will start by taking X-rays of the patient's mouth and neck. These pictures could reveal abnormally large tissues in the throat or other blockages in the airway. Dentists can make a customized appliance for you that will help reduce your snoring and improve your sleep without a loud or bulky machine. This is called oral appliance therapy (OAT), and it can help improve your health and quality of life. (Google)

Screening for osteoporosis and arthritic disorders

Currently, it has been estimated that more than 200 million people are suffering from osteoporosis. According to recent statistics from the International Osteoporosis Foundation, worldwide, 1 in 3 women over the age of 50 years and 1 in 5 men will experience osteoporotic fractures in their lifetime. This bone disease

can weaken bones by reducing their density and is most common in women over age 50. Osteoporosis is a serious disease, but treatment can be instituted when early detection is made possible. Hip fractures, in particular, are associated with significant mortality and morbidity in the elderly,1 but in one study, less than one-fifth (18%) of high-risk people had received medical treatment for osteoporosis before the occurrence of hip fracture. Since it is difficult to detect, most patients remain undiagnosed until their bone density decreases to the point that a fracture occurs. Dentists may notice symptoms of tooth loss or gum disease and can do Initial detection of risk factors by x-ray panoramic image and bone density information for the diagnosis of osteoporosis.

Early diagnosis and treatment of human immunodeficiency virus

HIV (human immunodeficiency virus) is a virus that attacks the body's immune system. If HIV is not treated, it can lead to AIDS (acquired immunodeficiency syndrome). There is currently no effective cure. Once people get HIV, they have it for life. In 2021 38.4 million people globally were living with HIV and 1.5 million people became newly infected with HIV (32). The dental setting is a largely untapped venue to identify patients with undiagnosed HIV infection. Some of the very common oral problems for people with HIV/AIDS are chronic dry mouth, gingivitis, bone loss around the teeth (periodontitis), canker sores, oral warts, fever blisters, oral candidiasis (thrush), hairy leukoplakia (which causes a rough, white patch on the tongue), and dental caries. Oral health professionals have the opportunity to be the first to identify the early stages of HIV infection. Rapid HIV testing can be completed in dental settings, with salivary assays generally requiring processing times of 30 minutes or less.

Hypertension

Early detection of high blood pressure is very important. Often referred to as the “silent killer” because it may show no symptoms, high blood pressure puts you at an increased risk for heart disease, heart failure, and stroke, among other things. According to WHO, about 580 million people with hypertension (41% of women and 51% of men) were unaware of their condition because they were never diagnosed. Prevention of hypertension can be done by evaluating preoperative blood pressure readings, performing risk assessments, and knowing when to consider medical consultation of a hypertensive patient in a dental setting. In addition, routine follow-up appointments and patients seen on an emergent basis, who may otherwise not be seen routinely, allow the oral health provider an opportunity to diagnose and refer for any unknown disease. It is imperative to understand the risk factors that may predispose patients to hypertension and to be able to educate them about their condition. (27)

Child Abuse

The World Health Organization (WHO) defines child abuse and maltreatment as “all forms of physical and emotional ill-treatment, sexual abuse, neglect, and exploitation that results in actual or potential harm to the child’s health, development or dignity Globally, it is estimated that up to 1 billion children aged 2–17 years, have experienced physical, sexual, or emotional violence or neglect in the past year (33). Dentists are at a vantage point when it comes to identifying child abuse. Literature shows that about 60%–75% of child abuse victims present with head, face, and mouth injuries. Furthermore, dental practitioners and auxiliaries come in regular contact with children and their caregivers and thus have an opportunity to assess not

just their physical and psychological conditions but also their family Milieu.

Cancer

Dentists play a crucial role in preventing and detecting oral and other types of cancer. Regular dental check-ups and cleanings can help detect changes in the mouth that may be indicative of cancer, such as red or white patches, lumps, or sores. Early detection is key to successfully treating oral cancer and other types of cancer, so regular dental check-ups can be a life-saving preventive measure.

In addition to detecting cancer, dentists can also help prevent cancer by educating patients about lifestyle habits that may increase their risk, such as smoking or excessive alcohol consumption. (18) They can also provide advice on how to reduce the risk of developing cancer, such as quitting smoking or limiting alcohol consumption. Finally, dentists can also help prevent oral cancer by performing regular oral cancer screenings, which involve a thorough examination of the mouth to detect any changes or abnormalities. Screenings can help detect cancer in its early stages, when it is most treatable, and can help ensure that patients receive the appropriate treatment and care.

Covid Response and Help

- Dentists played a crucial role in responding to the COVID-19 pandemic, despite facing many challenges, including workforce shortages. During the pandemic, many dental practices were forced to temporarily close or limit their services to emergency procedures only. This created a shortage of dental care providers and made it more difficult for patients to access the care they needed.
- However, many dentists stepped up to the challenge and adapted their practices to continue providing essential care to their patients. They implemented strict safety protocols, such as wearing personal protective equipment and screening patients for COVID-19 symptoms, to ensure that both patients and staff were protected from infection.
- In addition to providing essential care, dentists also played a role in supporting the larger healthcare system during the pandemic. Some dentists volunteered their time and resources to help with COVID-19 testing and vaccination efforts. Others collaborated with other healthcare providers to ensure that patients with COVID-19-related dental emergencies received the care they needed, despite the shortage of dental care providers.
- In conclusion, dentists were an essential part of the healthcare workforce during the COVID-19 pandemic, and their commitment and dedication to their patients and communities were critical to ensuring that people received the care they needed. Despite the challenges posed by the pandemic, dentists demonstrated their resilience and adaptability, and they will continue to play an important role in maintaining the oral and overall health of communities in the future.

Teledentistry

Teledentistry refers to a variety of technologies and tactics used to virtually deliver oral health and education services. It helps to connect providers to each other or connects providers directly with patients in a variety of settings.(22) Teledentistry facilitates patient self-management and caregiver support for patients and includes synchronous interactions (teleconferencing) and asynchronous transfers (chat, images, store and forward).Teledentistry has been around for many years, but the COVID-19 pandemic has put teledentistry into the spotlight. One study found that patients felt overwhelmingly positive about their teledentistry

experience. Survey data from Oregon, released in June 2020, showed that 86% of patients said they would recommend teledentistry services to others.

Teledentistry can benefit a broad range of populations, including Medicare and Medicaid beneficiaries, the uninsured, underserved and rural populations, people with urgent dental care needs and people who fear going to the dentist. It also bridges critical gaps in access to care by expanding limited capacity within a practice, enabling emergency dental consults or preventive hygiene education without barriers to travel, and improving patient referrals thanks to provider-to-provider consultations.

Taken together, the many applications of teledentistry can help maintain access to oral health care during a crisis. And industry leaders are beginning to recognize and leverage teledentistry's potential to improve access, equity, health outcomes and patient satisfaction in the future.

Plan of Action

The above problems can be eliminated by a) Providing Primary Oral Healthcare: as access to basic oral healthcare remains lacking in many countries, particularly in low- and middle-income nations like India, where obstacles to obtaining care still exist.

b) Effectively utilize their internship programs: A large number of recent dental school graduates are unaware of the significance of community oral health and their role in serving society. This is due to the fact that dental institutions do not effectively utilize their internship programs for providing services at a local level, and the oral health needs of older individuals are often disregarded. c)Avoid Self-medication for Dental Conditions: The primary motivations for individuals to self-medicate include the high cost of dental care, lengthy waiting times in hospitals, and the unavailability of dental services but the hazards cannot be overlooked. d)Enhancing Oral Wellness with Mobile Dentistry: The utilization of mobile dental clinics in public health dentistry should be increased as they have been successfully utilized to provide dental care to schools, individuals with disabilities, rural areas, industries, and military personnel in various countries. Mobile dentistry presents a potential solution to address the challenges of delivering oral healthcare to underserved populations in resource-limited countries. e)Popularize the concept of "Dental Tourism" which refers to individuals who travel to another location to receive dental services as it can make dental procedures more accessible for those who can't afford it or who live in an area without it, it may also limit the availability of providers for local patients. f) Increase participation in National Tobacco Control Programme where steps are taken to incorporate tobacco control in the curriculum of undergraduate medical and dental programs. This will equip medical and dental graduates with the necessary skills for tobacco control, with a focus on tobacco cessation. By providing education and training in this area, future healthcare providers will be better equipped to address the negative impact of tobacco use and help individuals quit. g) Last but not the least Research and programs in the field of Dental Public Health (DPH) are of utmost importance for the advancement of oral health care in a community. DPH focuses on the prevention and control of oral diseases in populations rather than just treating individuals. Through research, new methods and strategies can be developed to prevent and manage oral health problems in communities. This, in turn, can lead to an overall improvement in oral health, making dental care more accessible and affordable to all members of the community, especially those who are economically or socially disadvantaged.

Moreover, programs in Dental Public Health can help increase public awareness about oral health and the importance of good oral hygiene practices. This can result in a greater uptake of preventive measures, which can help reduce the burden of oral diseases in the community. Additionally, such programs can provide opportunities for dental professionals to engage with communities and educate them on oral health, thereby promoting a culture of preventive dental care.

Furthermore, Dental Public Health research can also provide a better understanding of the oral health needs of populations, including the impact of social, economic, and environmental factors on oral health. This information can then be used to develop policies and programs that target specific populations and provide more equitable access to dental care. (4)

In conclusion, Research and Programs in Dental Public Health are essential for advancing oral health care and promoting a healthy mouth for all. By focusing on the oral health needs of communities, dental professionals can provide the highest quality of care and help create a future where everyone has access to good oral health.(3)

Conclusion

In conclusion, dentists play a vital role in the prevention and detection of systemic diseases and cancer. Through regular dental check-ups and cleanings, they can identify oral health problems that may indicate a wider health issue and provide early treatment to prevent the development and progression of systemic diseases and cancer. Dentists can also educate their patients on lifestyle habits that may increase their risk of developing these conditions and provide guidance on how to reduce this risk. Regular oral cancer screenings performed by dentists can also help detect cancer in its early stages, when it is most treatable.

The close connection between oral health and overall health highlights the importance of regular dental check-ups and the role that dentists play in maintaining good health. By working closely with their patients and other healthcare providers, dentists can ensure that people receive the comprehensive care they need to maintain good oral and overall health, and prevent the development of systemic diseases and cancer.

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