REVIEW ARTICLE

DIABETES AND PERIODONTAL DISEASES -THE IMPORTANCE OF ATTITUDES AND CARE PRACTICES FOR ADULT PATIENTS WITH DIABETES : A REVIEW

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ABSTRACT

Each year around 1.7 million new instances of diabetes are diagnosed with 8.1 million people living with diabetes unaware of their condition. People with uncontrolled diabetes are more likely to develop a variety of oral health concerns including, periodontal diseases (gum diseases). Every person today has more bacteria in their mouth than there are humans on earth. Periodontal disease will develop if they build their homes in our gums. This inflammatory chronic condition can even destroy our teeth in place. Periodontal disease is most frequent dental disease among diabetes. Poor blood sugar control raises the risk of gum disease , especially as you get older .Poor blood sugar controls person with diabetes mellitus at a high risk for gum disease, can raise blood sugar levels. Diabetes becomes more difficult to manage as a result of diabetes .Because people with diabetes are more prone to these problems that might impair their dental health ,it is critical to practice excellent oral hygiene ,and pay a close attention to any changes in your oral health. Through this suggestions will be suggested for preventing and reducing oral health.

Key Words: Periodontitis, Diabetes mellitus, Periodontal surgery

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INTRODUCTION

Every person today has more bacteria in mouth than there are humans on earth. High blood sugar is the relationship between diabetes and dental health issues[1]. Oral health concerns are more likely to develop if blood sugar is inadequately controlled. This is due to the fact that uncontrolled diabetes reduces white blood cells, which are the body's principal defence against bacterial infections in the mouth[2].When the ability of your body to process sugar is affected by diabetes .Your entire diet is converted to sugar and consumed for energy . Type 1 diabetes occurs body produces insufficient insulin, a hormone that transports sugar from the bloodstream to the cells that require it for energy[3]. The body ceases responding to insulin in Type 2 diabetes. High blood sugar levels ensure in both circumstances, which can cause problems with your eyes, nerves, kidneys, heart ,and other body organs. Every year around 1.7 million new instances of diabetes are diagnosed with 8.1 million people living with diabetes unaware of their condition[4].People with uncontrolled diabetes develop a variety of oral health condition including periodontal diseases (gum diseases) .The effect of periodontitis on diabetes is inflammation[5]. It is the common link between periodontal disease and diabetes. In Patients with diabetes hyper inflammatory immune cells can exacerbated the elevated production of pro inflammatory cytokines[6]. This has the potential to increase insulin resistance and make it more difficult for the patient to control his or her diabetes periodontal treatment that decreases inflammation, may help in diminishing the insulin resistance.

In a recent study of subjects with the type two diabetes and periodontitis it was found that periodontal treatment resulted in a significant reduction in serum level of INF. That was accompanied by significant reduction in mean HbA1C values was correlated strongly with the reduction in serum INF-2 level across the patients population. This suggest that a reduction in periodontal inflammation, may help decrease inflammation, may help decrease inflammatory mediators in the serum that are associated with insulin resistance there by improving glycemic control[7]. Type 1 diabetic patient with periodontitis is had a reduction in required insulin does following state and root planning localized gingivectomy. And selected tooth extraction combined with systemic procaine penicillin and streptomycin[8]. In a large epidemiologic study in the United States adults with poorly controlled diabetes mellitus has 2.9 fold increase risk of having periodontitis compared to non-diabetic subjects conversely well controlled diabetic subjects has no significant increase in the risk of periodontitis.

1.Peridontal diseases

Infections and inflammation of the gums and bone that surround and support the teeth cause periodontal disorders. The gums might become swollen, red, and bleed in the early stages of gum disease, known as gingivitis. Periodontitis is a more serious form of gum disease in which the gums pull away from the tooth, bone is lost, and teeth loosen or fall out. Adults are more likely to get periodontal disease. The two most serious dangers to dental health are periodontal disease and tooth decay[10].

Bacteria in the mouth infect the tissue surrounding the tooth, resulting in inflammation and periodontal disease. When bacteria remain on the teeth for an extended period of time, they produce a film called plaque, which hardens into tartar, also known as calculus. Tartar can spread below the gum line, making teeth more difficult to clean. Only a dental health specialist can then remove the tartar and put an end to the periodontal disease.

1.1Peridontal disease has four distinct stages

1) Stage 1 :- Gingivitis
2) Stage 2:- Slight periodontal diseases
3) Stage 3 :- Moderate periodontal disease
4) Stage 4:- Advanced periodontal disease

On teeth, germs, mucus, and other particles form a sticky, colourless "plaque" that is constantly formed. Plaque can be removed by brushing and flossing. If plaque is not removed, it can harden and create "tartar," which brushing will not remove[11]. Tartar can only be removed by a professional cleaning by a dentist or dental hygienist.

Gum disease is caused by a number of factors, the most major of which is smoking. Smoking can also make gum disease therapy less effective. Diabetes, hormonal changes in girls and women, diabetes, medications that reduce saliva flow, certain illnesses, such as AIDS, and accompanying medications, and hereditary vulnerability are all risk factors.

1.2 Diabetes and periodontitis

Diabetic patients are prone to elevated low density lipoprotein cholesterol and triglycerides (LDL/TRG)

even when blood glucose levels are well controlled. This is significant, as recent studies demonstrate that hyperlipidaemia may be one of the factors associated with diabetes-induced immune cell alterations. Recent human studies have established a relationship between high serum lipid levels and periodontitis. Some evidence now suggests that periodontitis itself may lead to elevated LDL/TRG[12].Periodontitis-bacteraemia/endotoxemia has been shown to cause elevations of serum proinflammatory cytokines such as interleukin-1 beta (IL-1β) and tumour necrosis factor- alpha (TNF-α), which have been demonstrated to produce alterations in lipid metabolism leading to hyperlipidaemia. Within this context, periodontitis may contribute to elevated proinflammatory cytokines/serum lipids and potentially to systemic disease arising from chronic hyperlipidaemia and/or increased inflammatory mediators [13]. These cytokines can produce an insulin resistance syndrome similar to that observed in diabetes and initiate destruction of pancreatic β cells leading to development of diabetes.

2.Prevention of Periodontal diseases

2.1 Brushing

- Brush your teeth at least twice a day with fluoride toothpaste and a soft nylon brush with rounded bristles.
- Use brief back-and-forth strokes and little circular motions. Use gentle back-and- forth motions[14].
- When brushing your teeth, remember to brush your tongue as well.

2.2 Flossing

- Each use of dental floss should be roughly 18 inches long.
- In between the teeth, avoid using a "sawing" motion[15].
- Curve the floss around each tooth and scrape it up and down from below the gum line to the top of the tooth numerous times.
- After flossing, rinse thoroughly.

3.Treatment of periodontal diseases

You can maintain your teeth and gums healthy if you have diabetes and maintain a healthy blood glucose level. Get regular dental examinations. Any changes in your diabetes and any medications you're taking should be reported to your dentist. Plaque and tartar eradication beneath the gums In the early stages of gum disease, deep cleaning (also known as scaling and root planning) can help eliminate plaque and calculus behind the gums as well as sick tissues[16]. It also smoothes the teeth's damaged root surfaces. After that, the gums can reattach to the teeth. This reduces the size of the periodontal pocket.

3.1 Medicine :- Antibiotics may be placed in the periodontal pockets or a tablet may be prescribed by your dentist.

3.2 Surgery. :- Your dentist will clean the infected areas beneath the gums and reshape or replace the tissues if the condition is advanced. Pocket reduction, periodontal regeneration, soft tissue transplant, and crown lengthening are examples of procedures.

3.3 Pocket reduction surgery :- Pocket reduction is a surgical technique that removes dangerous germs from between the
between the gums and the teeth[17]. While scaling and root planning can help with moderate cases of gum disease, when the infection has progressed, pocket reduction surgery is sometimes required. Your periodontist may combine pocket reduction with additional operations, such as a bone graft or tissue regeneration, depending on your specific situation. (FIGURE 1) gums and the teeth[17]. While scaling and root planning can help with moderate cases of gum disease, when the infection has progressed, pocket reduction surgery is sometimes required. Your periodontist may combine pocket reduction with additional operations, such as a bone graft or tissue regeneration, depending on your specific situation. (FIGURE 1)

3.4 Soft tissue grafting :- There are three types of soft tissue grafts, and the procedure utilised on you will be determined by your unique needs[18]. The following are the graft procedures:

The most common treatment for exposure to the roots is connective tissue grafts. During this surgery, a flap of skin from the roof of your mouth is removed, and the tissue beneath the flap is removed so that the exposed root can be sewn to completion.

3.5 Crown lengthening :- crown lengthening is the process of removing bone tissue while also removing or rearranging the soft tissue surrounding the tooth[19]

3.6 Periodontal regeneration :- It is a technique for repairing damaged tissue surrounding periodontally

defecit teeth [20]. The goal of the regenerative process is to increase biological activity by using scaffolds, cells and growth factors.

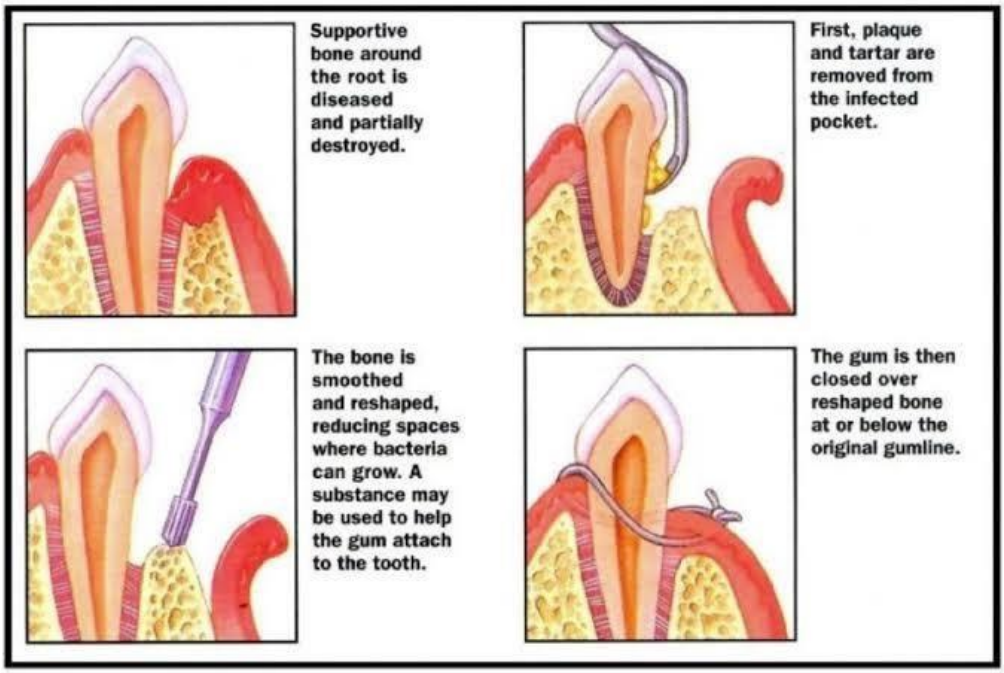

FIGURE 1:POCKET REDUCTION SURGERY (Internet source: https://www.gtaperio.com/?page_id=373)

CONCLUSIONS

People with uncontrolled diabetes are more likely to develop a variety of oral health problems including periodontal disease. This inflammatory chronic condition can destroy our teeth in place. Alteration in host defence and tissue homeostasis appear to play a major role Advances in medical management of DM require in heightened awareness by the periodontist in various treatment regimens used by diabetic patient. Familiarity with various medication, monitoring equipments, and devices by diabetes patient allows provision of appropriate periodontal therapy while minimising the risk of complications.

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