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ORAL HEALTH AND DIABETES MELLITUS – A REVIEW FROM AYURVEDIC PERSPECTIVE

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ABSTRACT

The term "diabetes mellitus" describes a group of disorders characterized by elevated levels of glucose in the blood and abnormalities of carbohydrate, fat and protein metabolism. Most people who suffer from the disease, they understand that it can harm eyes, heart, kidneys and blood vessels but very few know that it has a negative impact on oral and dental health as well. People with diabetes are at a greater risk of developing periodontal (gum) disease which heals slowly. Dry mouth, a common symptom of undetected diabetes, can lead to ulcers, soreness, infections, and tooth decay. The standard Western medicine has had only limited success in the prevention of periodontal disease and in the treatment of a variety of oral diseases. There was a long history regarding plants for the improvement of dental health and oral hygiene in our Ayurvedic texts. Various studies have proven that *Dantadhavana* described in ancient *Ayurved* texts have medicinal and anti-cariogenic properties. There are some practices like *Kaval & Gandoosh* claimed to prevent and to cure oro-dental diseases. In this paper, an attempt has been made to review various procedures which can be used as an adjunct for the maintenance of oral health and prevention of diabetes mellitus induced oro-dental disorders.

KEYWORDS: Diabetes mellitus, oral problems, oral health, Ayurveda.

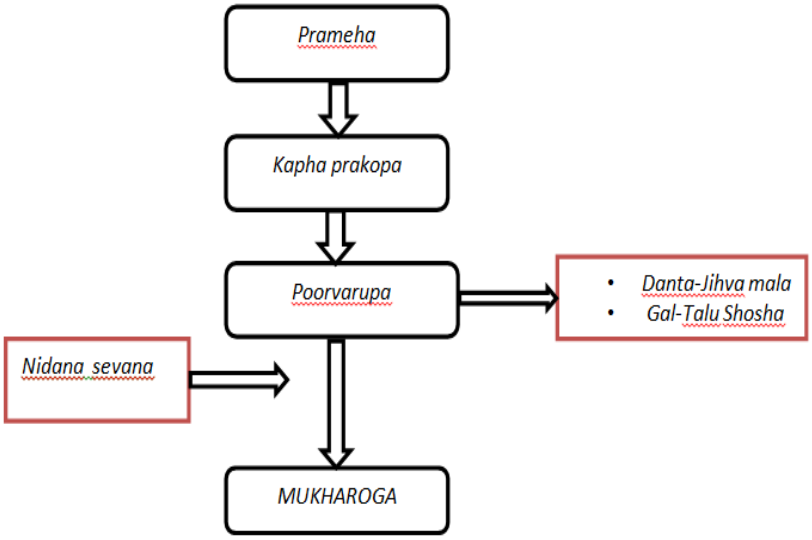
INTRODUCTION

Diabetes Mellitus is a growing health concern and a common chronic metabolic disease worldwide.[1] The term "diabetes mellitus" represents a group of metabolic diseases that are characterised by hyperglycaemia due to a total or relative lack of insulin secretion and insulin resistance or both. Diabetes mellitus is considered a leading cause of death due to its microvascular and macrovascular complications.[2] Most people who suffer from the disease, they understand that it can harm eyes, heart, kidneys and blood vessels but Very few know that it has a negative impact on oral and dental health as well. People with diabetes are at a greater risk of developing periodontal (gum) disease, fungal infection and salivary dysfunction, which can leads to ulcers, soreness, infections, and tooth decay. The standard Western medicine has only limited success in the prevention of periodontal diseases and in the treatment of a variety of oral diseases. But, in Ayurved there was a long history regarding the improvement of oral health in our texts. There are some practices like *Kaval & Gandoosh* claimed to prevent and to cure oro-dental diseases. In this paper, an attempt has been made to review various procedures which can be used for the maintenance of oral health and prevention of diabetes mellitus induced oro-dental disorders.

ORAL COMPLICATION AND MANIFESTATION OF DIABETES MELLITUS

Several soft tissue abnormalities have been reported to be associated with diabetes mellitus in the oral cavity. These complications include periodontal diseases (periodontitis and gingivitis); salivary dysfunction leading to a reduction in salivary flow and changes in saliva composition, and taste dysfunction. Oral fungal and bacterial infections have also been reported in patients with diabetes. There are also reports of oral mucosa lesions in the form of stomatitis, geographic tongue, benign migratory glossitis, fissured tongue, traumatic ulcer, lichen planus, lichenoid reaction and angular chelitis.[3] In addition, delayed mucosal wound healing, mucosal neuro-sensory disorders, dental carries and tooth loss has been reported in patients with diabetes.[4] The prevalence and the chance of developing oral mucosal lesions were found to be higher in patients with diabetes compared to healthy controls.[5]

AYURVEDIC APPROACH



- We all know that *Prameha* occurs due *to kapha prakopa*. All acharyas have described that *Danta jihva mala*, *Talu shosha* and *Mukhamadhuryata* are developed in *purvarupa avastha* of *prameha* but In this condition if patient taking continously *nidanasevana* or not take any treatment and not maintain oral health, *mukha rogas* occurs in that patients mostly. i.e. *Shitada*(periodontitis), *Krimidanta* (dental caries), *Danta sharkara* (tartar), *mukhapaka* (stomatitis) and *mukhasosha* (dryness of mouth).

ORAL HEALTH AND ITS IMPORTANCE

Ayurveda recognizes oral cavity as one of the nine openings of physical body. These openings are full of blemishes with their secretions throughout day and night, Hence it suggests cleaning these openings frequently and regularly. *Ayurveda* prescribes *Dinacharya* modalities like *Dantadhavana* (brushing the tooth), *Kavala and Gandoosha* (gargling) to keep up oral cavity clean and healthy.

DantaPavana[6]

It means cleaning teeth by means of brushing, *Manjana* and *Pratisarana*.

Importance

- Freshens up the mouth.
- Removes bad odour from the mouth.
- Removes coating on teeth.
- Alleviates '*Kapha'*
- Increases desire for food.

- Makes on feel pleasant.

Jihwanirlekhana[7]

To clean a tongue with the help of tongue scraper. It should be made up of either metal or branches of the tree.

Importance

- Removes bad taste from mouth
- Eliminates bad odour of mouth
- Reduces swelling of tongue
- Relieves stiffness of tongue
- Enhances the sense of taste.
- Stimulates the taste buds.

Kaval* and *Gandoosha[8]

"*Kaval*" means Medicated fluids are in the mouth incompletely and asked to rotate in the mouth for a specific time and then asked to spit it out. "*Gandoosha*" means Holding of medicated fluids in the mouth in full quantity.

Importance

- Strengthens the mandible.
- Improves voice quality.
- Nourishes the face.
- Enhances taste-perception.
- Prevents drying of throat, chapping of lips and tooth-decay.
- Strengthens teeth & gums.
- Reduces hypersensitivity of teeth to sour taste or hard food substances.

Dhoomapana[9]

Taking of medicated smoke either through the mouth or nose and releasing it through mouth is called *Dhoomapana*.

Importance

- *Mukhasuddhi.*
- *Vakasuddhi.*
- Lightness of *mukha*, chest and head.
- *Nirmal indriya.*
- Strengthens teeth & gums.

PLANTS WITH THEIR ORAL HEALTH RELATED INDICATIONS

The literature showed that there are numerous Ayurvedic drugs, which can be used in prevention as well as management of oral diseases. Some commonly using plants along with properties are listed here.

Neem

Antibacterial, Antifungal, Antiviral, analgesic, immunostimulator and antioxidant property of Neem is well established.[10] It has both mechanical as well as chemotherapeutic antiplaque agents.[11] Neem leaves mouth rinse is very effective in the treatment of periodontitis.[12]

Triphala

Triphala has shown anticaries[13] and antiplaque property. It is also used for strengthening the gums[14] and root canal irrigant.[15]

Tulsi

Tulsi extract as 4% mouth rinse effectively reduces salivary streptococcal mutants counts.[16]

Haridra

Turmeric extract can be used in the treatment of potentially malignant lesions in oral cavity.[17] It effectively inhibits metastasis of melanoma cells and may be used in deactivating carcinogens in cigratte smoke and tobacco chewing.[18]

Kantakari

Kantakari seeds Dhoopan has been used in dental caries due to its chemical constituents likes olanocarpine, carpesterol, solanocarpedine, solasonine and solasodine.[19]

Amalaki

Amalaki has an antioxidant as well as astringent property which has been proven to be effective in the treatment of toothache, gingival inflammations and apthous stomatitis.[20]

Lavanga

Lavanga oil is commonly used to relive in toothache. Eugenol, which is the active component[21], is widely used in root canal therapy, dental abscess, temporary fillings and several gum diseases.[22]

Kumari

Grita kumari has property of dentin formation.[23]

Nimbu

Nimbu/Lemon solution is the natural source of citric acid with pH 1.68. Because of its antibacterial efficacy, a freshly prepared lemon solution is recommended as a root canal medicament.[24]

Amra

Amra leaf contains ascorbic and phenolic acid. Mango leaves posses antibacterial property against anaerobic micro flora and can be used as an effective adjuvant in maintaining oral hygiene.[25]

CONCLUSION

People with diabetes are at a greater risk of Oro-Dental diseases rather than healthy people.Good oral hygiene is necessary for the maintenance of oral health and prevention of diabetes mellitus induced oro-dental disorders. *Dantadhavana*, *Kaval*, *gandusha* etc. processes for keeping mouth clean and healthy in D.M. and also manage oral problems.

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