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Role of ayurveda in dentistry: Incorporating indigenous system of medicine in Oro-dental care

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Abstract

Since ancient times, herbal medicines have been used for the management of dental health and improving oral hygiene. Ayurveda has been using medicinal herbs for the treatment of several ailments of body including the diseases of Oro-dental origin. Various studies have proven that herbal extracts are very useful in the treatment of various diseases because they have ability to interact with certain specific chemical receptors present in the body. In the current scenario, ayurvedic system of treatment has provided an alternative to the allopathy. Nowadays, there has been a sudden increase in the use of herbal extracts or plant products as an alternative approach to modern day medicines. The present review focuses on the role of ayurvedic medicines in dentistry and oral health care.

Key words: Ayurveda, oral hygiene, dental health

Introduction

Ayurvedic system of medicine is regarded as the world's oldest medical system, originating from India and has been used for over thousands of years. The aim of Ayurveda is to provide a coordination for health in such a way that it which will create a balance between human body, mind, and spirit. It is believed that such coordination between these components will lead to overall happiness and healthy state, thereby preventing illness^[1]. It has been proved that the herbal medicines which are described in Ayurvedic medical literature are safe and effective. There is a wide range of several surgical procedures and medicinal formulations, employed for the management of diseases has been practiced over centuries in ayurveda. Complementary medicine form of ayurveda has also been practiced in other parts of the world. The alternative medicine is a form of using traditional medicine to treat diseases adopted by different population. Scientists have explored several herbs of medical importance which can be employed for the various diseases, leading to the emergence of several preventive and therapeutic strategies for oro-dental and ultimately, the general health. It is a known fact that majority of oral diseases are because of bacterial infections. Studies have shown that several medicinal plants provide an important anti-bacterial action against various microorganisms^[2].

Shalaky Tantra: In ayurveda, shalaky tantra is the branch which deals with diagnosis and management of diseases occurring above the clavicle, This is a system of surgery which includes dentistry also. Dental health is called as "Danta Swasthya" in ayurvedic system of medicine which has been described in Sushrut Samhita^[3]. Before the emergence of allopathic era, oral and dental related issues were managed using ancient ayurvedic therapies. In ayurvedic system of medicines, shalakyatantra states that there are sixty five different mukha rog (Oro-dental diseases) that can arise in 7 anatomic locations, i.e.8 from lips, 9 from palate, 15 from alveolar margin, 8 from teeth, 5 from tongue 17 from oropharynx and 3 in generalized form. Various plants having medicinal value are being used can be used as supplemental aids for the management of oral diseases. It has been reported that several herbs having medicinal value, which are being used in ayurvedic materials are safe and also have a good therapeutic efficacy. Herbal products in the form of tooth pastes, gum paints, mouth washes, and root canal irrigants are used in oral health care etc.^[4].

Oil Pulling: It is a procedure followed in ayurvedic system in which patient is made to swish the oil in the oral cavity for improving oral and systemic health. This procedure has been described in the Ayurvedic text, "Ashtanga Hridayam" where it was known as Kavala or Gandusha [5]. It is believed that this procedure is beneficial for the body as it can treat about thirty systemic diseases including headache, migraine, diabetes mellitus and bronchial asthma. For this, the sesame plant, which belongs to the Pedaliaceae family, has been used as it provides numerous health related beneficial effects. For many years, oil pulling has been used extensively in India as a home remedy to prevent various oral health related issues such as dental decay, halitosis, bleeding gums, cracked lips, dryness of throat, and for strengthening teeth, periodontium and the jaws [6].

Tissue regeneration: In ayurveda certain plants like amla can play an important role in tissue regeneration as it can be helpful in the healing of the various connective tissues. This property can be used for the regenerative therapy in the gingival tissues. The therapeutic effect takes a longer time to show results as it must saturate the body completely so as to act on gingival and periodontium. However, the effect of it is long lasting. Studies have shown that the hawthorn berry and bilberry fruits play an important role in stabilizing the collagen in the connective tissue matrix, thereby imparting strength to the gingival tissues. In Ayurvedic science, teeth are regarded as a part of Astidhatu i.e. bony tissue. This is because of the fact that sockets of dentition are similar to bone joints. Herbal medicines, which are being administered so as to strengthen the Astidhatu, i.e. the body skeleton and the bone joints, are beneficial for long-term health of the teeth. Best examples in this category are turmeric root, alfalfa leaf, yellow dock root, cinnamon bark etc. [6].

Jiva Lekhana: It is a procedure of tongue scrapping. In this procedure in which a U shaped metal strip made up of copper, gold, silver or stainless steel measuring approximately 4-5 cm in width and which can withstand corrosion is used. The strip should be rounded and blunt, so that it prevents any sort of injury to the surface of tongue. Tongue is protruded out of mouth and is scrapped from posterior to anterior direction on the dorsum to cleanse the surface. It is helpful in eliminating halitosis, improving taste sensation, and it also aids in the stimulation of the oral digestive enzymes [7].

Use of Various Herbs in Ayurveda: Aloe Vera: Aloe vera has been used for medicinal purposes because of its numerous health benefits. It is available in the form of oral and topical preparations. Studies have shown that aloe vera has a stimulating effect on synthesis of glycosaminoglycans. It has been reported that aloe vera has a positive influence on dentin formation, proliferation of pulp cells and mineralization. It can also be employed for the treatment of dry socket (Alveolar osteitis) cases. Aloe vera has been used for periodontal abscess cases as it gives a soothing effect. Oral chronic traumatic ulcers especially in the patients using ill-fitting dentures can be treated by the application of aloe vera. Apart from this aloe vera can be used in the treatment of oral mucosal lesions like lichen planus and benign migratory glossitis etc. [8].

Cloves: Clove belongs to the Myrtel family of dicotyledonous plants which originally were native to Maluku Islands of Indonesia. Cloves are known to exhibit natural antihelmintic

properties, which is very helpful in alleviating dental pain as a virtue of its antiseptic action and thus providing relief in the cases of tooth ache. It's also used for the treatment of the subjects with halitosis. Traditionally clove oil has been commonly employed for the cases of pain relief in toothache. In dentistry, clove in the form of eugenol is extensively used in root canal treatment, dental abscess, temporary restorative material and gingival and periodontal diseases [9].

Turmeric: The chemical composition of turmeric includes curcuminoids, desmethoxycurcumin, and bisdemethoxycurcumin. It is generally found in the underground stem and is considered to be nontoxic. Turmeric has several therapeutic effects like antioxidant action, antiseptic in nature. It also possesses analgesic activity. Some authors believe that turmeric has anti carcinogenic activity also. This is because it was found that turmeric extract can be employed for the treatment of oral potentially malignant disorders. It was reported that turmeric could inhibit the metastasis of melanoma cells and can be employed in inhibiting the activity of carcinogens found in smoke and tobacco. Curcumin is also known for its antibacterial action against anactinomycetemcomitans and methicillin resistant staphylococcus aureus. Curcumin is one of the radio sensitizers and is known for its chemo preventive action for which, it is also used in the treatment of oral mucositis [10].

Amalaki (Indian Gooseberry): This fruit is known for its healing properties and it has highest concentrations of vitamin C. Hence, it is believed that amalaki is one of the anti-oxidants. It is also abundant in other compounds like carotene, vitamin B3, vitamin B2 and tannis. Amalaki also possess analgesic, antipyretic, immunomodulatory and cytoprotective effects. It is helpful in protecting gingival tissues because it exhibits antioxidant property, as it boosts natural cell killer activity against the several types of oral microorganisms [11].

Haritaki (Myrobalan): It comprises of chebulic acid, chebulagic Acid, cocitagin and gallic acid. The herb has shown anti-bacterial activity against a various gram-positive and gram-negative microorganisms in humans. Anti-fungal and anti-viral effects are also exhibited. It has been reported that haritaki is most efficacious for bleeding gums and oral ulcers [12].

Neem: Neem is rich in antioxidants and it is helpful in amplifying the immune response in gingival tissues. The antimicrobial effects of neem have been reported against S.mutans and S. faecalis. Ethanolic and aqueous extract of neem leaf have showed a significant anti-fungal activity against Candida albicans. It has been reported that the aqueous extract of Neem stick and the gallotannin-enriched extract from melaphis chinensis inhibits insoluble glucan synthesis and results in bacterial aggregation, thereby imparting it an anti-plaque activity [13].

Triphala: Triphala contains equal parts of the following i.e. Emblica officinalis, Terminalia chebula, and Terminalia bellerica. The chemical composition of triphala include tannins, quinones, flavones, flavonoids, flavonols, gallic acid and vitamin C. Triphala has shown significant anti-bacterial activity against three and six week biofilms especially when used as a root canal irrigant. Research has shown that triphala exhibits a strong inhibitory activity against PMN-type

collagenase, especially MMP-9. *In vitro* studies have shown that triphala inhibited *Streptococcus mutans* at concentrations of 50µg/ml which describes its anti-microbial activity. It has been demonstrated that using triphala mouthwash at a concentration has significant anti-caries activity, which was comparable to that of chlorhexidine ^[14].

Conclusion

The dental health professionals should be well acquainted with the protocols regarding the application, therapeutic safety and efficacy of the several traditional medicines and over the counter products. Need of the hour is to integrate professional oro- dental treatment modalities with complementary alternative medical care so as to render best possible systems of management for the patients. This will benefit the patients as they will get an alternative and new form of management.

Conflict of Interest

Not available.

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