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PHARMACOLOGICAL ACTIONS OF CURCUMIN IN ORAL SUBMUCOUS FIBROSIS-A REVIEW

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ABSTRACT

Curcumin is a naturally occurring yellow pigment isolated from the plant curcuma longa, having wide spectrum of biological actions. It is non-toxic and has a variety of therapeutic properties including antioxidant, analgesic, anti-inflammatory, fibrinolytic, antiseptic, chemotherapeutic, antiviral, antibacterial and antifungal activity. Curcumin has been found to possess anticancer activities via its effects on variety of biological pathways involved in mutagenesis, oncogene expression, cell cycle regulation, apoptosis and metastasis. Oral cancer is sixth most common form of cancer world wide. Its incidence is particularly high in India and other Asian countries. Curcumin exhibits a big promise as therapeutic agent in pre-cancerous conditions.In gel form it is component in local drug delivery system. Curcumin conjugated nanoparticles can be used as anticancer agent. Curcumin due to its properties can be used in patients with oral submucous fibrosis, as application of it is beneficial and inexpensive too.

KEYWORDS: Antioxidant, Chemotherapeutic, Nanoparticles, Curcumin, OSMF.

INTRODUCTION

In 1966 pindborg and sirsat oral submucus fibrosis (osmf) is defined as "An insidious, chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although occasionally preceded by and/or associated with vesicle formation, it is always associated with juxtaepithelial inflammatory reaction followed by fibroelastic changes in the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa causing trismus and inability to eat".[1]

Characteristic features of OSMF are Stiffness of oral mucosa, trismus, reduced tongue movement, difficulty in eating, swallowing and phonation, discoloration/desquamation of oral mucosa, palpable fibrotic bands in buccal mucosa, stomatopyrosis, reduced interinscisal distance, blanching of mucosa and shrunken uvula Suggestive etiological factors include, chronic irritation of oral mucosa (areca nut ,slaked lime, tobacco) Collagen disorder, Defective iron metabolism, Immunological disorder, Genetic disorder.[2]

Phytotherapy in treatment of OSMF i.e., the use of herbal agents in medicine and dentistry. A wide range of treatment modalities have been proposed for OSMF, but none have been proved to be curative, so the search for effective modality still continues.[3]

Curcumin-The golden herb Turmeric (Curcuma longa) is an ancient dye, flavoring and medical herb, widely used in Asian countries Curcumin, 1, 7-bis (4-hydroxy-3-methoxyphenol)-1, 6-heptadiene-3, 5-dione, is the primary active substance isolated from Curcuma Longa L. rhizome. First isolated in 1815 Chemical structure was found by Roughley and Whiting (1973). Soluble in ethanol and acetone but insoluble in water.[2]

DISCUSSION

Various studies have been conducted worldwide to show the pharmacological and therapeutic effect of curcumin in OSMF.

Agarwal N, et al conducted study to check the efficiency of turmeric in 30 OSMF patients results Improvement in mouth opening and burning sensation exhibits anti-inflammatory and fibrinolytic property.[6] Yadav M, et al Comparison of curcumin with intralesional steroid injection in OSMF patients Improvement of burning sensation, inter incisal distance and tongue protrusion

Curcumin showed anti-inflammatory and fibrinolytic properties reducing the rate of collagen synthesis.[7]

Pharmacological action of curcumin Inhibits lipid peroxidation Inhibit cellular proliferation Reduce rate of collagen synthesis Fibrinolytic activity Inhibits TNF-α , Anti-inflammatory activity.[4]
Balwant Rai To know the possible mechanism of curcumin in precancerous conditions based on serum and salivary markers of oxidative stress Curcumin mediates its anti pre-cancer activities by increasing levels of vitamins C and E and preventing lipid peroxidation and DNA damage Anti-precancerous effects of curcumin are mediated through pro-oxidant and anti-oxidant pathways.[5]

Zhang SS, et al Potential therapeutic value of curcumin in OSMF patientDecreased stiffness of oral mucosa Curcumin inhibits proliferation, disrupts the cell cycle, induces apoptosis and decreases the expression levels of type I and III collagen[8] Turmeric extract and turmeric oil have demonstrated oncopreventive activity in in vitro and in vivo animal experiments.[8]

Future prospects
Curcumin conjugated silver nanoparticles Antibacterial activity, determine nucleic acid in concentration range 100-1000 ng/mL anticancer agents.[9]

CONCLUSION

Turmeric is considered a safe, nontoxic, and effective alternative for many conventional drugs due to its distinguished therapeutic properties and multiple effects on various systems of the body. Its role in the treatment of oral cancers is very promising. Constant use of curcumin showed marked improvement in osmf patients due to its pharmacological properties.

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