

Endorphins in Management of Tobacco Addiction to Health Promotion

Shrihari TG*

Professor, Department of Oral Medicine and Oral Oncology, Krishna Devaraya College of Dental Sciences and Hospital, Bangalore, Karnataka, India

***Corresponding Author:** Shrihari TG, Professor, Department of Oral Medicine and Oral Oncology, Krishna Devaraya College of Dental Sciences and Hospital, Bangalore, Karnataka, India.

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Introduction

Tobacco addiction is causing social, economic, and health burden in the world. Tobacco addiction is mainly due to psychological stress or peer's pressure. I wonder why people are addicted to tobacco in the form of smoking or chewing, where human body is designed with neurochemicals for happiness and euphoria, addiction, only thing is to tap the untapped potential is needed.

Endorphins and its actions

Endorphins are endogenous morphine, more potent than morphine produced in the pituitary gland response to stress and pain. There are three types of endorphins beta-endorphin, enkephalin, dynorphin binds with μ , κ , and δ receptors situated on the nervous system and immune cells. Beta-endorphin is an abundant endorphin, synthesized and stored in the anterior pituitary gland; it is a precursor of POMC (Proopiomelanocortin).

In the PNS, binding of betaendorphin to the receptor (μ) on peripheral nerves results in inhibition of substance p, a neurotransmitter of pain and inflammation.

In the CNS, binding of betaendorphin to the receptor (μ) on the central nervous system results in inhibition of GABA inhibitory neurotransmitter; produce dopamine neurotransmitter involved in analgesic activity, euphoria, stress buster activity (Tranquility of mind), self-reward, cognitive development, and wean tobacco addiction.

Endorphin receptors situated on the most innate and adaptive immune cells. Binding of betaendorphin to the receptors(μ) situated on the innate and adaptive immune cells such as neutrophils, macrophages, mast cells, natural killer cells, dendritic cells, T cells and B cells results in inhibition of inflammatory mediators such as IL-1, TNF- α , and IL-6 and activation of innate and adaptive immune cells (Immune stimulatory activity) results in release of opsonin, granzyme-B, IFN- γ , and antibodies involved in anti-inflammatory activity, analgesic activity, anti-viral activity, and anti-tumor activity.

Betaendorphin inhibit chronic psychological stress induced activation of sympathetic nervous system activity and activation of parasympathetic nervous system activity of autonomic nervous system through inhibition of HPA-axis mediated release of stress releasing hormones (Catecholamines) such as cortisol, ACTH, and noradrenaline mediated activation of inflammatory mediators such as IL-1, TNF- α , and IL-6, which further activate transcription factors such as NF-KB key transcription factor and STAT-3 transcription factor in-

volved in oxidative stress, cell injury, tissue damage, cell aging by chronic inflammatory mediators(IL-4, IL-5, IL-13, IL-15, IL-17) leading to heart disease, Alzheimer's disease, cancer, autoimmune diseases, infectious diseases, diabetes, hypertension, and aging.

Beta-endorphin delay aging by lengthening telomeres, which otherwise shorten with aging and also by suppressing oxidative stress mediated release of free radicals such as ROS, RNS which is involved in cell injury, tissue damage and cell aging.

Endorphins are produced during yoga, mindful meditation, pranayama, intense physical exercise creates a psychological relaxed state known as "Runner's high", singing, dancing, music therapy, acupuncture, sex, massage therapy, tender, love, care.

Conclusion and Future Perspective

Beta-endorphin involved in tobacco deaddiction by reducing psychological stress and health promotion by its analgesic, anti-inflammatory, antiviral, anti-aging, and anti-tumor activity, can be used in holistic preventive, therapeutic, and health promotive, palliative management of various diseases without adverse effects and inexpensive.

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