

**EFFECT OF CISPLATIN AND CURCUMIN
THERAPY ON GROWTH RATE OF HEAD
AND NECK SQUAMOUS CELL CARCINOMA
CELL LINE: AN INVITRO STUDY**

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(قالوا سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم)

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List of Abbreviations

ATCC: American type culture collection

BDNF: Brain-derived neurotrophic factor

CDDP: Cis-diammine dichloride platinum

COX-2: Cyclooxygenase-2

CBP: CREB- binding protein

CMN: Curcumin

DRG: dorsal root ganglia

DMSO: Di-methyl sulfoxide

EBV: epstein barr virus

E.Coli: escherichia coli

EC: endothelial cell

ELISA: Enzyme linked immunosorbant assay

FBS: foetal bovine serum

FA: fanconi anemia

G2 phase: gap 2 phase of cell cycle

HSV-1: herpes simplex virus-1

HSV-2: herpes simplex virus-2

HIV: human immunodeficiency virus

HPV: human papilloma virus

HNSCC: head and neck squamous cell carcinoma

Hep-2: human epidermoid carcinoma

iNOS: inducible nitric oxide synthase

JNK: jun N-terminal kinase

LDPI: laser Doppler perfusion imaging

LOX: Lipooxygenase

M phase: mitosis phase of cell cycle

MDR Lines: multidrug- resistant lines

MEM-H: minimum essential medium modified with hank salt

NSAIDS: non steroidal anti-inflammatory drugs

NF- κ B: nuclear factor kappa B

OS: Osteosarcoma

OPN: osteopontin

PG: prostaglandin

PBS: phosphate buffer saline

PDGF: Platelet-derived growth factor

RTOG: Radiation therapy oncology group

Rb: retinoblastoma gene

ROS: reactive oxygen species

VSMF: Vascular smooth muscle cell

VEGF: vascular endothelial growth factor

VC: Vitamin c

Introduction

Squamous cell carcinoma represents more than 90% of all head and neck cancers, squamous cell carcinoma has a regional distribution involved in the biological activity of the neoplasm. Behavior of squamous cell cancer depends on its site of origin. Each anatomic site has its own particular spread pattern and prognosis. In the United States, squamous cell carcinoma of the head and neck comprises about 4% of all malignancies. This corresponds to an estimated 17 per 100,000 persons with newly diagnosed squamous cell carcinoma of the head and neck per year. Male-to-female incidence rates are greater than 3:1. The discrepancy in the male-to-female ratio is even more pronounced in laryngeal tumors, in which carcinoma is 4-5 times more common in men. This ratio has declined in the last 20 years, possibly reflecting the increased number of women using tobacco products during this period ⁽¹⁾. The number of new cases of head and neck cancers in the United States was 40,490 in 2006, accounting for about 3% of adult malignancies. 11,170 patients died of their disease in 2006 ⁽²⁾.

In certain parts of India and Southeast Asia, the practice of mixing cured tobacco with betel nuts has been associated with head and neck cancers. More than 200 million persons are thought to engage in this practice worldwide. A resultant 2.8 times higher relative risk of cancer exists for these individuals, and this increases to more than 10 times when smoking is also practiced. In these areas, the incidence of oral cancer alone is greater than 25 cases per 100,000 Persons ⁽¹⁾.

Several methods for treatment of cancer of the head and neck are acceptable, including surgery, radiotherapy, chemotherapy, new molecularly targeted agents, and combinations of these. New investigative treatments include immunotherapy and gene therapy. Factors that influence the choice of treatment are the site, grade, and stage of the primary tumor, patient age, and general medical condition. Goals of treatment generally consist of removal of cancer load, maintenance of quality of life, and prevention of subsequent primary tumors ⁽¹⁾.