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REVIEW ON ANTICANCER AND CARDIO-PROTECTIVE EFFECT OF LIPOSOMAL DOXORUBICIN IN THE TREATMENT OF BREAST CANCER

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Abstract

Background: Breast cancer (BC) is a highly prevalent disease, accounting for the second highest number of cancer-related mortalities worldwide. The anthracycline doxorubicin (DOX), isolated from Streptomyces peucetius var. caesius, is a potent chemotherapeutic drug that is successfully used to treat various forms of liquid and solid tumors and is currently approved to treat BC. DOX exerts its effects by intercalation into DNA and inhibition of topoisomerases I and II, causing damage to DNA and the formation of reactive oxygen species (ROS), resulting in the activation of caspases, which ultimately leads to apoptosis. Unfortunately, DOX also can cause cardiotoxicity, with patients only allowed a cumulative lifetime dose of 550 mg/m2. Efforts to decrease cardiotoxicity and to increase the blood circulation time of DOX led to the US Food and Drug Administration (FDA) approval of a PEGylated liposomal formulation (L-DOX). Both exhibit better cardiovascular safety profiles; however, they are not currently FDA approved for the treatment of metastatic BC. Here, I provide detailed insights into the mechanism of action of L-DOX and its most common side effects and highlight results of its use in clinical trials for the treatment of BC as single agent and in combination with other commonly used chemotherapeutics.

Objective: Anticancer and cardioprotective effect of liposomal doxorubicin in the treatment of breast cancer.

Method of study: e –journal, data collection ,Google form

Keywords: Anthracyclins,L-DOX,FDA,Cardiotoxicity

GENE REARRANGEMENT IN ANAPLASTIC LYMPHOMA KINASE: MAJOR TRIGGER FOR VARIETY OF CANCERS

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Abstract

Mutations are changes in DNA which can contribute to cancer development , progression and metastasis. Such kind of mutations were present in ALK gene which was the leading cause for most of the cancers. This study focus on the management of ALK positive cancer patients. To study the genetic rearrangement in Anaplastic Lymphoma Kinase present in various cancers which may prove to be useful for the devolpment of new therapeutic regimen. Genetic rearrangement involves formation of fusion protein that control gene expression. The ALK gene gives the information for making a protein called ALK receptor tyrosine kinase present in the cell surface play a major role in signal transduction. The overexpressed ALK gene due to formation of fusion gene results in continuous activation of the downstream signalling pathway and increase the proliferation of cell which is leading cause for most of the cancers. Thus ALK plays a crucial role in devolpment , progression of various cancer. Most of the mutations in the ALK gene are somatic mutations. Inhibition of these mutation or targeted therapy will help in management of various cancers.

Key words : ALK, ALK Fusion protein, Signal Transduction pathway

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