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Effect of chemotherapy on cancer cells.

Philip Assari*

Department of Oncology, Saint Joseph University, Beirut, Lebanon

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Description

Cancer is a class of diseases categorized by out-of-control cells' growth which affect DNAs and make them impaired. Various treatment possibilities for cancer exist, with the main ones including surgery, chemotherapy, radiation therapy, hormonal therapy, targeted therapy, and palliative care. Which treatments are used depends on the category, site, and position of cancer as well as the person's health and wishes. Chemotherapy is the usage of medication to treat ailments. More specifically, chemotherapy normally refers to the destruction of cancer cells. The incidence of administration of chemotherapy may cause some effect can degrade the patient's functional status of anxiety. Anxiety can ascend due to the effects of chemotherapy. Some cancer cells subsist chemotherapy by consuming their neighboring tumor cells. The study proposes that this action of cannibalism provides these cancer cells with the dynamism essential to stay alive and initiate tumor relapse after the progress of treatment is completed.

Types of chemotherapy

Conventional chemotherapy: Conventional chemotherapy is the leading treatment for cancer and assists patients in the form of reduced relapse and metastasis and longer comprehensive survival. However, as the target therapy drugs and delivery systems are not wholly accurate, it also results in quite a few side effects and is less competent in several cancers due to the spared cancer stem cells, which are considered the basis for chemotherapy resistance, relapse, and metastasis.

Targeted therapy: The Folate Receptor (FR) is a definite tumor-related antigen that binds folate and folate–drug conjugates with very high affinity and shuttles these certain molecules inside cells *via* an endocytic mechanism. Using folate (or an analog thereof) as the ligand, a wide variety of drug contents can be delivered to FR-positive cells, ranging from small radioactive imaging agents up to large DNA-containing formulations. For therapeutic purposes, the addition of small molecular weight, highly potent agents to folate is a novel approach.

Hormonal therapy: The hormonal treatment gives a small number of objective responses in patients treated; most frequently the responses are incomplete and of short period. In practice, treatment with a progestational agent, such as medroxyprogesterone acetate, is frequently used because of the slight production of unwanted side effects and lack of more effective therapy. Single-agent chemotherapy seems to enhance little in terms of tumor response, although a small fraction of patients will have favorable responses to single agents such as vinblastine. Combination chemotherapy may give a marginally higher response rate according to results reported in numerous small series, but there is a considerable increase in toxicity, and, as yet, no clearly definable improvement in patient survival.

Tumor cell invasion and metastasis are related to the proteolytic activity of several types of proteinases. Among them, cathepsins, which are lysosomal proteinases, have received more responsiveness recently. Since raised expressions of cathepsins and reduced levels of their inhibitors have been detected in numerous human cancers, including breast, gastric, and prostate cancer, mainly in aggressive cancer cells, cathepsins have been advised to be biological markers of malignant tumors and have been attested useful for prognosis of the disease. Furthermore, cathepsins have several roles in cancer progression. Cathepsin D has a mitogenic activity independent of its proteolytic activity and it attenuates the anti-tumor immune response of putrefying chemokines to inhibit the function of dendritic cells. Cathepsins B and L have been shown to play a key role in matrix degradation and cell invasion. The administration of their inhibitors averts the invasion and metastasis of cancer cells. These results designate that cancer cells orchestrate various cathepsins to progress malignant ailments.

*Correspondence to

Philip Assari

Department of Oncology

Saint Joseph University

Beirut

Lebanon

Email: Philipassari@gmail.com

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