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Review Article: Vitamin C Progress Apoptosis in Breast Cancer

Alaa A. Abdulrazzaq
AL-Rasheed University College, Baghdad, IRAQ

Corresponding Author: alaa.abd@alrasheedcol.edu.iq

ABSTRACT

The cancer of breast is virulence in female and is curable in ~70–80% of patients. The vitamin type C is an essential vitamin and consider as an anti-oxidant, so this vitamin could recover the supply for oxygen, stopping the destroy of DNA and other impact necessary in cancer processing. The vitamin C indicate as an active anticancer as the concentricity were monitor in this cancer therapy. The concentricity of this vitamin has a main function in cancer-rising or cancer suppression. These studies have shown a relationship between the vitamin and increase death-rate of breast cancer, so it's important to detect the anticancer prospective of vitamin C to detect the different among its effect in healthy and damage cells, especially these studies conducted that this difference could depend on the vitamin c concentration. These studies indicate that large doses of vitamin c could decrease the effect of some cancer therapy such as radiation and chemotherapy.

Keywords- vitamin C, antioxidant, X-ray, breast cancer

I. INTRODUCTION

The breast cancer is a main cause of death in the world as well as it's the most common cancer in females [1]. Vitamin C is important in numerous processes as an assistant for enzymes implicated in related process and has main role in cancer diversion: antioxidant, duplication, and could regulate the expression of gene [2]. The apoptosis, or program of cell death, is the capability of a cell to self-destroy by activating an intrinsic cell murder program. Therefore, it is significant to understand the factors that influence the apoptosis [3]. The antioxidants (*e.g.*, vitamin C) could played a vital role in cancer-promotion. The reported conducted on this vitamin represent in different ways as anti and could consider pro-oxidant [4]. So, the concentration of vitamin C assembly present relationship between the vitamin absorption and the riskiness of cancer. It is necessary to elucidate the potency of the vitamin to clarify its ability of reacting with other subjects uses in treatment [5]. Therefore, this study investigates the anti-cancer efficiency of large-dose of this vitamin accomplished with other therapy of the cancer. The result of these study conducted about the metabolism of damage cells could have a main function in related influence of vitamin C [6]. many concentricity of VC has reverse activity on the immigration of cancer cells, for instance, the uses of this vitamin could be accomplished with decline the hazardous of this cancer [7]. This study investigates that the large concentricity of vc could cause the damage of the cells [8]. Using the light microscopy, the dead of cells by apoptic programmed is raised with increase the dose of therapy [5]. As the cell become older or injury, they damage by apoptotic programmed and must replace with new cells. The cancer cells consider eternal as they resist the apoptosis [9] these cells are eliminated by chemotherapy through apoptosis and/or necrosis. Different characteristic of apoptotic programmed is seen in these cells included the chromatin condensation and the damage of cytoplasm [10]. The cancer cells could increase the resist to apoptotic programmed [11]. The weight of vitamin C in human were accomplished with depression of Fas produced apoptotic programmed also the membrane permeability of the mitochondria is increase [12]. Anticancer therapy considers adjective as it conjugates with many compounds, which could result in a negative therapeutic outcome [13]. High doses of V C could cause differences in the metabolism and genetic characteristic of cancer cells which induce the cell deaths [14] High doses of vitamin C could induce Reactive oxygen species (ROS) [6]. Vitamin C in oxidizing form is imparted and overflowing of vitamin C could lead ATP termination result in cell death [15]. DNA crush was induced in human breast cancer when treated the cancer with sulforaphane, for 96 h [16]. The apoptotic programmed of cells were noticed in different cells after treatment with many concentricity of extracted seed of *L. sativum* [17]. Therefore, vitamin c is accumulated in tumor cells more than normal cells via glucose transporters (GLUTs) [18]. So as farthest breast cancers ultimately improve resistance to therapies, the high-dose vitamin C will create a new strategy for resistance [19].

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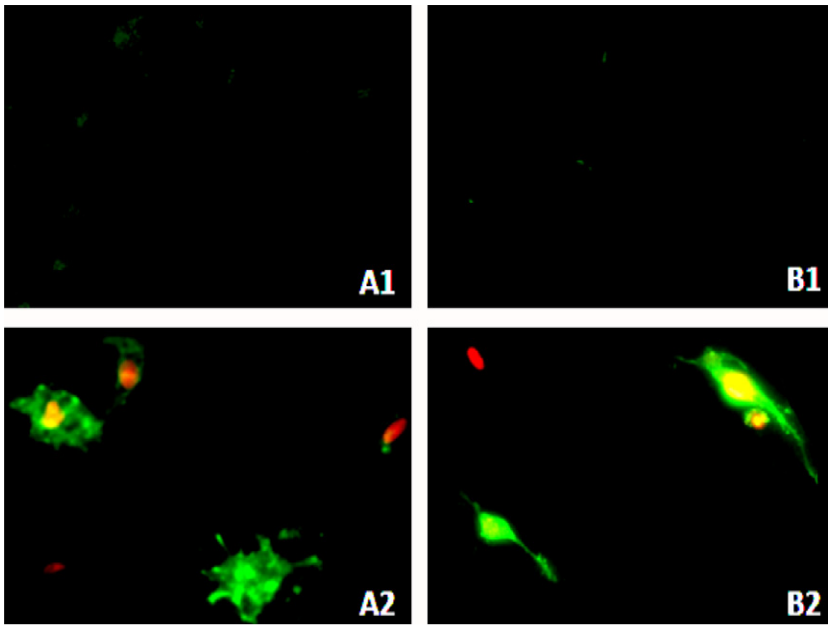

Figure 1: stain the cells with fluorescent

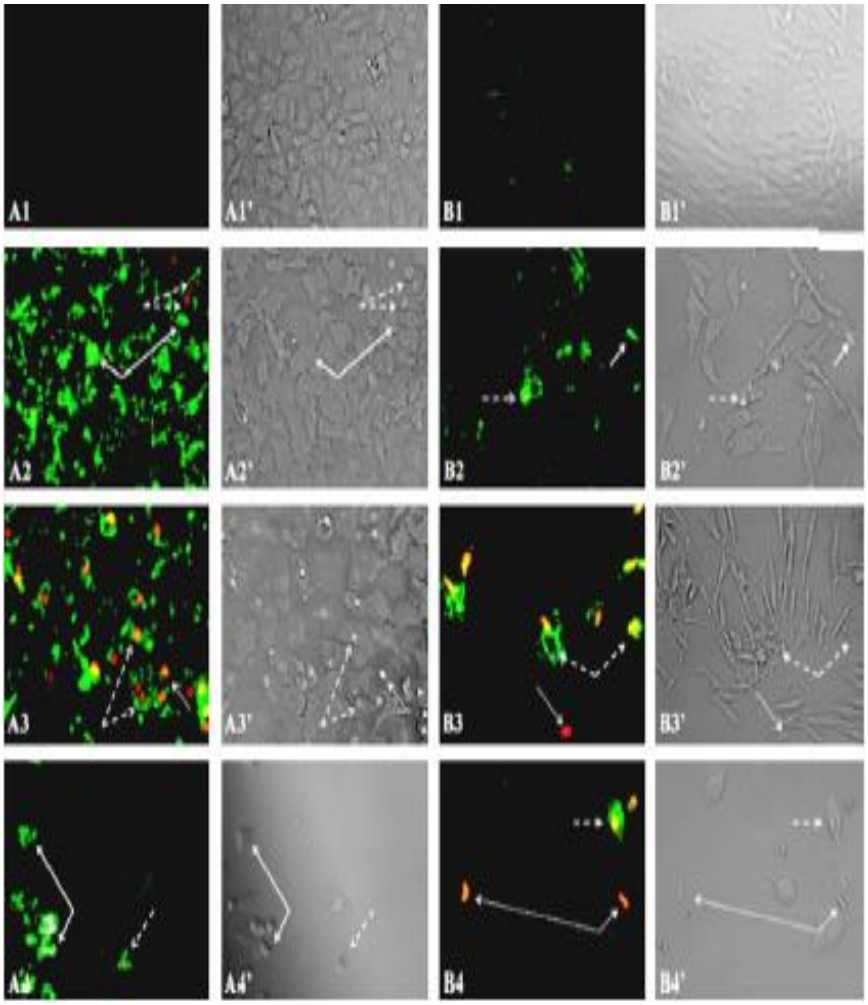

Figure 2: Shows the apoptosis in breast cancer

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II. DIAGNOSIS OF THE DISEASE

The experiment of women about breast signs such as a mass, high pain, the change of the shell, demand suitable diagnosis , also some women wanted more experimentation because of positive .diagnosis of the cancer as it depend on a three testing consist of medical testing , take image such as ultrasound or mammogram which known as an X-ray of the breast, if abnormality is detected on a screening ,the doctor will recommended a diagnostic to further evaluation or other medical test called the biopsy which consider the definitive way , during this test the doctor uses a special syringe to extract the suspected tissue that can be easily uses for further imagination test [20]

III. THE GENETIC INHERITED

Almost 10% of breast cancers consider transmitted and related to a family history [21], as this different extremely enhance by ethnics and according to countries. The women with a first- stage terms which has breast cancer could elevated a high risk (HR) [19]. Also, the family will old background of breast cancer is accomplished with an irregular danger of breast cancer consist of different characters, including the family size and factors of environment [22].

IV. THE DEATH-RATE OF THE DISEASE

Two million women were diagnosis with this cancer in 2018 and each 18 seconds an additional case is conducted; also, 732,699 women are dead with this disease [20]. The occurrence of this cancer is increase yearly about 3.2%, beginning with 640,000 cases in 1981 and more than one million in 2010. In fact, the breast cancer become universal according to the income level, related to the people growth [23]. The women accounts for 48.4% of the people, and they form a highest percentage of the people [24]. So, the developer of breast cancer is seen in almost countries as registered both the diagnosis and the deaths [15]. In 2017 , study investigated that, ~162,000 women lived with proceeding this cancer in America alone [25].

V. THE FACTORS EFFECT ON BREAST CANCER

The design of cancer is different among the countries because are accomplished by the environmental factors, which include the increasing in age, the obesity, the family transmitted the genes that raises the danger of cancer and the exposure to radiation [26]. The rate of this cancer is increased between 1980 and the late 1990s is likely because of the differences in the social factors, which include the progress in the age of pregnancy, and the raises in people realization [27].

VI. THE ROLE OF IMMUNE SYSTEM

The immune system has a main role in prevent the breast cancer in women. Lymphocyte, concluded the T cells, the regulatory cells, and killers' cells, and associated with cytokine in breast cancer. The advanced of breast cancer could concerning to the immune system function status. Some study conducted that the immune system has a main function in breast cancer which conducted by all clinical research fig 3 [28].

VII. SCREENING

The screen of the women was investigated at the first stage of the disease, that consider very important in cancer therapy, by uses a test that consider precise and accepted to the final-stage of the cancer [29]. The screening for breast cancer using X-ray consider a second strategy detected the disease in early stage to allow the effectiveness of the therapy Fig. 4. [30].

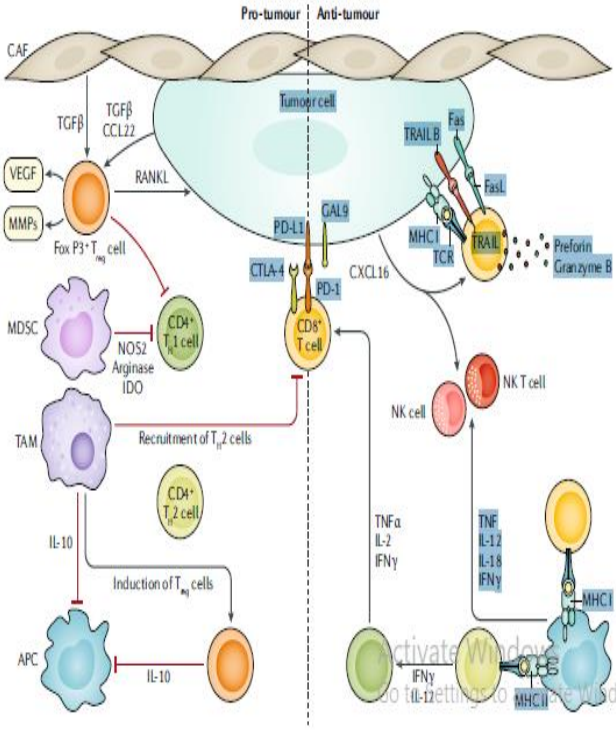

Figure 3: Illustrated the immune complex in breast cancer

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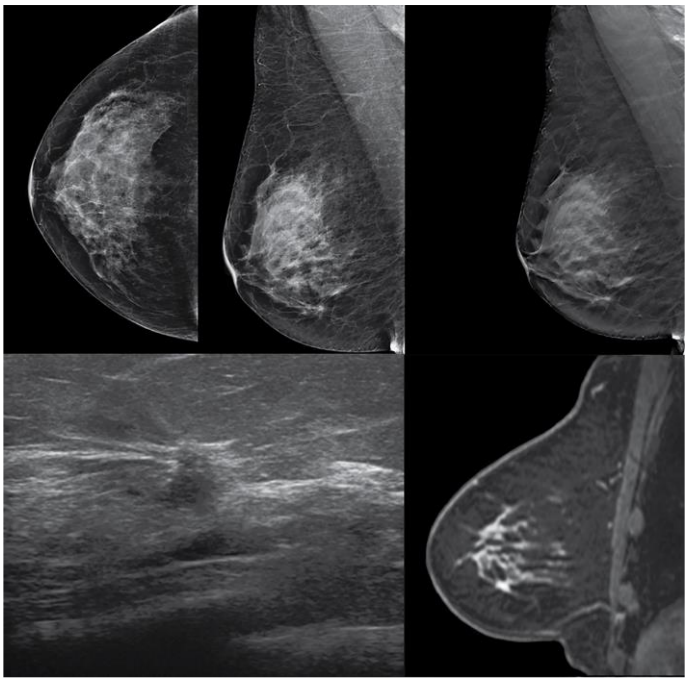

Figure 4: Shows the screening for breast cancer

VIII. THE REPORTING OF THE DISEASE

The uses of a standard report accomplished by a checklist is highly necessary for this disease, the report must contain the details for the tumor (according to the WHO classified), the grade of histological, HER2, the mass of the tumor and the lymph node; the surgical of the specimen is uses to apply the information for the vessel's infestation (Box 1) [31].

Box 1 | **The pathology report for breast cancer**
• Histological type according to the current WHO classification [32]
• Histological grade according to the Elston- and Ellis- modified Scarff–Bloom–Richardson
System [33]
• Peritumoral vascular or lymphatic embolia
• Hormone receptor status.
• Human epidermal growth factor receptor 2 (HER2) status
• Excision margins (mm)a
• Tumour size, single or multiple tumours
• Ductal carcinoma in situ component type, grade and percentage
• Lymph node status
• Pathological stage according to the Union for International Cancer Control TNM
• Ki67 score according to the international group guidelinesb [34]

IX. CONCLUSION

Since Vitamin C could have a main function in provide attention in cancer patients. Its interest to examine the potency of vitamin C in reacting with many chemicals uses in cancer treatment, mostly when different drugs are considered as hematopoietic cancers. The administer of this therapy could facilitate the anti-cancer activity for the breast cancer cells related to the single agent. Therefore, the clinical test is wanted to detect the effect of high dose of this vitamin in patients with breast cancer [35].

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