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Flavonoids Effects on Breast Cancer Tumors

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Abstract:

Background: Breast cancer is one of the main causes of cancer deaths and the most common malignancy in women worldwide. Breast cancer accounts for 7% of total cancer deaths. There is a direct relationship between diet and cancer. One way to improve nutrition is good. Flavonoids Polyphenol compounds are found in some fruits, vegetables, seeds. This study examines the effects of flavonoids on breast cancer tumors.

Methods: This study was performed on 16 breeds of mice (Balb / c nu). First, the rats were divided into two groups: A and B; in the food group A, flavonoids were used, but in group B, these compounds were not used. Breast Cancer Tumor: 4t1 cancer cells were injected into 5 rabbits (balb / c) after culture. Following the appropriate size of the tumor, ethical standards were removed from the body of the mice. After 4 weeks, breast cancer tumors were cultured in groups A and B mice. Then, every 5 days, a mouse from each group was selected to examine tumor volume and lymphocyte proliferation.

Results: The results of 40-day studies showed that tumor volume in 8 mice in group A was less than group B ($P < 0.05$). Likewise lymphocyte proliferation in The spleens of the micea in group A were significantly more than group B($p<0.05$)

Conclusion: Nutrition is one of the most effective ways of preventing and preventing the spread of disease in the body, especially cancer. Flavonoids are found in some fruits, such as apples, pomegranates and red grapes, and are found in vegetables such as broccoli, celery and tomatoes in the brain such as walnuts and drinks such as green tea. Due to its antioxidant properties, flavonoids increase cellular immunity and increase the production of lymphocytes and strengthen the immune system. As seen in this study, the use of flavonoids in group A increases cellular immunity. By inducing breast cancer in the rat body, the expansion of the lymphocyte in group A was greater than that of group B, which the ability to cope with the tumor and reduced tumor volume. Based on the results, flavonoids play a major role in boosting the immune system so that they can be used for cancer drugs and cellular immunity. It is recommended that flavonoids are used daily to increase the immune system's strength against many diseases, including breast cancer.

Keywords: Flavonoids, Breast Cancer, Nutrition, Prevention.

Introduction:

Breast cancer is the most common cancer and also the primary cause of mortality due to cancer in female around the World. About 1.38 million new breast Cancer cases were diagnosed in 2008 with almost 50% of all breast cancer patients and approximately 60% of deaths occurring in developing countries. There is a huge diference in breast cancer survival rates worldwide, with an estimated 5-year survival of 80% in developed countries to below 40% for developing countries[1]. Only 5 to 10 % of all types of cancer are basically caused by inborn cancer predisposition such as the so-called familial breast cancer subtype know to be related to the BRCA1 and BRCA2 mutations. In contrast, the absolute majority of all cancer types carries a sporadic character based on modifiable risk factors[2]. modifiable risk factors play a central role in cancer prevention. Contextually, it has been estimated that almost one-third part of all cancers could be avoided through appropriate dietary habits and supplements[3,4]. Abundant evidence has been collected for beneficial effects of flavonoids compounds affecting a number of cancer-related pathways and can slow down the carcinogenic process by suppressing survival and proliferation of tumor cells as well as diminish invasiveness and angiogenesis of tumors. Some of them can stimulate detoxifying carcinogens and eliminating them from the body[5,6]more than 5000 flavonoids have been identified and are distributed in a wide range of plants. On the basis of their chemical structures, these flavonoids have been grouped into 10 categories, 6 of which including flavones, flavanones, anthocyanidins, flavonols, isoflavones, and catechins are commonly present in the human diet. Many

of these flavonoids possess documented anticancer activity both in animal and cellular model systems[7]. Flavonoids are natural substances that are widely used in many plant species. Especially in fruits and vegetables, such as celery, cherry, pepper, carrots, onion leaves, broccoli and parsley[8,9].Therefore, flavonoids are important antioxidants that have potent anticancer effpals[10]. The purpose of this paper is to increase the awareness of human societies about the impact of nutrition in preventing breast cancer and to help research institutes to produce drugs for the prevention and treatment of breast cancer using natural substances such as flavonoids .

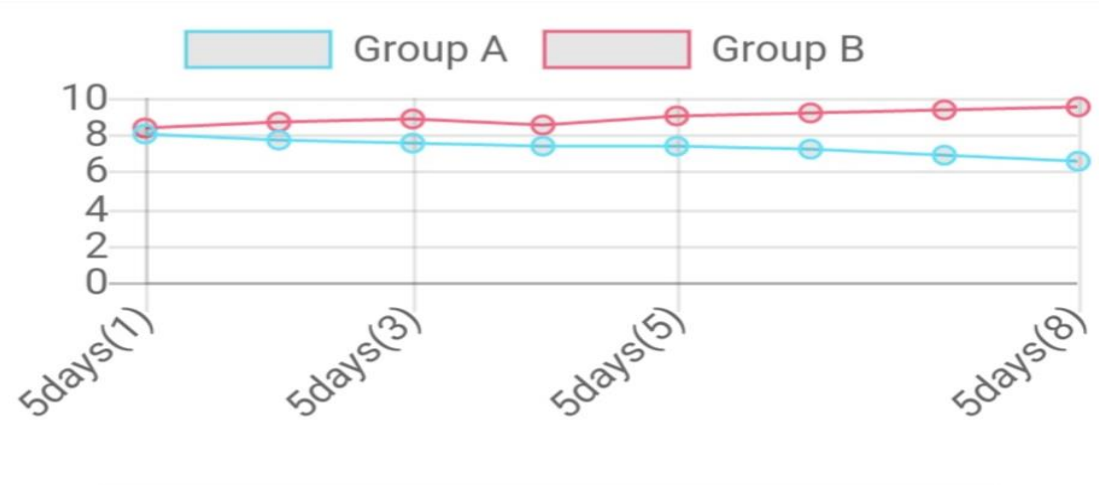
Methods :

This research studies the effects of flavonoid in fruits and vegetables on breast cancer . Healthy mice 16 (femal) (race balb/c) (Ten days passed from their birth) . were purchased from the Pasteur Institute of Iran. And divided into two groups A and B . In group A, foods made with apples, soybeans, beans, celery, carrots (made from flavonoids), but not in group B, were used.

Create a cancerous tumor : Breast cancer cells 4t1 race (balb / c) were purchased from the Pasteur Institute of Iran . The cells were cultured in (Dhg , dmem high cells were injected into the right chest of 7 mice (balb / glucose) medium. 6,000,000 c) . After suitable size of the tumor Following the appropriate size of the tumor, the body of mice was exited in accordance with ethical standards . Tumor graft:4 weeks after start feeding group A and B The 2 × 2 × 2 mm tumor was implanted to the right of the Under the skin mice. Two weeks after transplantation, every 5 days, a mice from each group was used to measure tumor volume and proliferating the spleen lymphocyte through the test (MTT (3-(4,5-Dimethylthiazol-2-yl)-2,5-Diphenyltetrazolium Bromide)) . Data analysis was performed using SPSS software version 19 with 95% confidence interval and p <0/05 as a meaningful level.

Results :

After a few weeks of using flavonoids, tumor growth was significantly lower in group A than in group B (p<0/05) (Fig. 1). Lymphocyte proliferation in the spleen: The rate of lymphocyte proliferation in group A mice was significantly higher than those in group B mice (p<0/05) (Fig,2) .



(Fig.1) Increased tumor volume in groups A and B, which has significant changes. During 40 days, 16 mice were examined (p<0/05) .

. (Fig.2): Stimulation of lymphocytes in the spleen was higher in group A than in group B.(p<0/05).

Conclusion:

Diet and nutrition have been considered as an effective preventive strategy for cancer. A bunch of dietary natural products have shown a potential role in prevention and treatment of cancers.[11,12,13]. . Fruits, vegetables, cereals, teas, essential oils, various beverages, or food products that are derived from them contain natural antioxidants and chemopreventive agents, such as popolyphens or flavonoids .[14]. Flavonoids reduce inflammation and cancer recurrence by (a) acting as an antioxidant or increasing antioxidant gene or protein expression;(b) decreasing cancer cell proliferation; (c) blocking pro-inflammatory cytokines or endotoxin-mediated kinases and transcription factors involved in cancer progression; (d) increasing histone deacetylase activity; or (e) activating transcription factors that antagonize chronic inflammation.[15,16].

One of the ways to prevent and treat breast cancer is proper nutrition. The use of natural ingredients like fruits and vegetables reduces weight, fat and, most importantly, reduces estrogen and progesterone. One of the natural ingredients that is effective in preventing and treating breast cancer is flavonoids .

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