

# THE ROLE OF ANTIOXIDANT FOOD AND THE VEGETARIAN DIET IN CANCER PATIENTS

**Teodora OLARIU, Amalia BIRAU\*, Armando MUNTEANU**  
 "Vasile Goldiș" Western University Arad, Romania

**ABSTRACT.** The negative consequences that accompany the progress of civilization and the demographic explosion, humanity is in the face of threats that endanger health. Cancer is a disease that requires medical and surgical treatment; can be prevented or improved by the use of an antioxidant diet and rational vegetarian regimes. Major concern of mankind must be marked on food decreased adjuvant (additive) and the pollution itself. Mandatory food disease patient with cancer-containing foods are rich in antioxidants: vitamins A, B, C, E, mournful, polyphenols, glutathione and the exclusion of potentially carcinogenic food: red meat, preservatives, stabilizers food etc. Vegetarian regimes would seem to be beneficial patient cancerous, because they are regimes which exclude food rich in acid radicals.

**Keywords:** antioxidant diet, vegetarian regimen, cancer

## INTRODUCTION

Complex process of cancer diseases evolve for many years, but in recent decades, their number increased by more than one victim.

The negative consequences that accompany the progress of civilization, and the demographic explosion, mankind is in the face of threats that endanger health.

In addition to scientific medical treatment or surgery, diet has a significant influence on human, modifying current pathology increasingly clear, competing with power imbalances through excess or deficiency (Hocman G., 1989)

Unfortunately current foods are polluted by various substances that can be grouped into two classes: adjuvant food or food additive and pollutants or contaminated food itself.

The first class includes chemicals deliberately added to food as a necessity to improve technological efficiency or as a practical necessity (stabilizers or preservatives drawers for conservation). They are of the order of hundreds:

a. Substances preserved: substances which are opposed to chemical modifications (antioxidants); substances which are opposed to physical changes (anti-, binders,

emulsified); substances which are opposed to biological changes (antiseptics, antibiotics, anti-germinative)

b. Organoleptic substances (improved): coloring and bleaching; and potential flavoring flavors; synthetic sweetening.

Contaminants include:

a. Chemical treatments of animal husbandry and agriculture (pesticides, biostimulators, fertilizers)

b. Natural treatments for excessive enrichment range (formation of toxic polymers, degradation compounds) contaminated by machinery, pipes, impure raw materials, solvents, air, etc..

c. Storing or transporting food: contamination of packaging; contamination from handling

d. Toxic compounds formed by processes common physicochemical (hydrolysis, oxidation)

e. toxic compounds resulting from biological processes (amine, microtoxins)

f. noxious compounds concentrated in the tissues of plants or animals (carcinogenic hydrocarbons, metals etc.).

g. Noxious compounds pre-existence in some products (gossipol, alkaloids, etc.) (Mihele D., 2008)

Major role in cancer treatment is medical or surgical treatment, and food appropriate to exclude harmful factors, it is equally important. A proper diet along with a balanced lifestyle can make prevention and treatment of cancer patient.

A balanced diet is a scientific tool that can prevent:

- The emergence of diseases
- Decreased frequency of cardio-vascular diseases, cancer and diabetes (Hocman G., 1989).

The physiological, the body through metabolic processes is formed of a permanent oxygen free radicals. In a healthy body with a balanced and pollutants or intractable infections, the antioxidant present in blood and tissues are sufficient to maintain a balance between free radicals and antioxidants.

In the cancer patient antioxidants decreases significantly increase the level of free radicals. The most destructive and dangerous free radical hydroxyl radicals are acting on the chemical composition of the body, being the most sensitive fats (unsaturated fatty acids, nucleic acids and some vitamins) (Hocman G., 1989).

The most exposed to the free radicals are cellular membranes that are rich in fatty acids polyunsaturated oxidable easily and can form lipoperoxids. Lipoperoxidation was found to be increased in cancer disease process represents a general mechanism of initiation of pathology in the cells.

In recent decades, industrialization of agriculture through the use of various fertilizers, pesticides, additives due to pollution of various adjuvants amounts of food supply problem in the production implications of various cancerous diseases. Influences on nutrition induce cancer can be determined by four groups of factors: severe food by various factors (calin, iodine); excessive intake of certain substances rich in animal protein and fat; formation of toxic metabolites; presence in food of substances

with carcinogenic effect, which exists in nature or come from pollution.

An important role in prevention, but also to treat malignant disease is present antioxidant substances. Reactions of neutralizing free radicals and peroxides are a general mechanism of protection, the important role being bioantioxidants which can prevent installation of the disease.

Similar to the patient that has cancer, the medical-surgical treatment, daily consumption of foods with antioxidant properties is beneficial and may prolong life a few years. Today were discovered and inhibitors of malignant process, substances that can prevent formation of free radicals, and if their formation, antioxidants prevent binding with other molecules.

The main antioxidants in the diet recommended cancer patient:

1. Vitamin C: role of stimulating immune processes and has the potential to decrease the risk of cancer, the most powerful antioxidant against various forms of cancer. Foods containing large amounts of vitamin C are: oranges, grapefruit, lemon, strawberries, peppers, lettuce, cabbage, tomato, spinach (Mihele D., 2008)

2. Vitamin A: role in maintaining the integrity of skin and mucosal immune-stimulant T lymphocytes in the production sources of origin: - retinoids present in food of animal origin: egg yolk, milk, liver -  $\beta$  carotenes (provitamin A in carrots, lettuce, peppers) (Mihele D., 2008).

Both retinoids and carotens are powerful antioxidants and anticancer due to the following properties: - role in blocking the proliferation phase precancer cell - chemically induced decrease cancerogenesis - has antimutagens effects - antioxidant effects in hepatic microsomes level - increase the ability of killer T lymphocytes upon tumors

3. Vitamin B2 (riboflavin) - is a protector against chemical carcinogens

4. Vitamin E - inhibits the formation of nitrosamines through protective antioxidant effect on fatty acids and prevents polyunsaturated decreased selenium in the body. This vitamin protects the body of free

radicals that may be responsible for triggering cancer. Provenance sources: vegetable oils, walnuts, hazelnuts, almonds, flakes oats, rice non-cortical, cereal germs.

5. Mournful: role in the inactivation of estrogens hormones that can cause breast cancer. Provenance sources: cabbage, broccoli, cauliflower

6. Polyphenols: neutralize nitrosamines which are formed in the stomach and triggering role in gastric cancer. Sources of origin: garlic, green tea, crucify (broccoli, cabbage, Brussels sprouts)

7. Glutathione: antioxidant that deactivates free radicals, the most powerful antioxidant in the body comes sources: avocados, broccoli, melon, asparagus

8. Isophlavons: blocks estrogen, preventing breast cancer origin sources: vegetables

9. Quercetol: bioflavonoid antioxidant and antiviral properties, and when combined with vitamin C is a disabled some carcinogens

10. ELAG acid - prevents the conversion of healthy cells and cancer cells and has anti-inflammatory action, antiviral, and with anti-bacterial comes liver protection. Sources: cherries, grapes, strawberries

11. Triterpens: disable steroid hormones that promote cancer cell growth by reducing speed or cell division of origin. Source: citrus

12. Sulphoraphan: role in various forms of cancer origin. Source: green onions, red cabbage, green olives, broccoli.

In an inorganic antioxidant

- Selenium: detoxification of free radicals and some metals like mercury, cadmium, arsenic. Source provenance: onions, garlic, paddy grain, eggs, fish, chicken, crab, shellfish, shrimp, calamari

- Iodine: needed to prevent thyroid cancer

- Zinc: deficiency facilitates its emergence tumors

- Copper: salts slow with the emergence hepatoms

### **Proteins**

Casein protein from milk protects against liver carcinogens. Food fibers: fibers grain can prevent colon cancer.

Foods excluded from the patient with cancer are: red meat and sugar, food preserved in brine, the consumption of food and beverages at high temperatures, alcohol, tobacco fat animals, mycotoxins present in molds (in bread, nuts), smoked food, from food preservatives, food coloring, food stabilizers, acrylamides resulting from burning of carbohydrates rich foods (cereals, potatoes).

Administration of antioxidants synthetic long-term is not shown but recommended the consumption of natural foods. U.S. Cancerology Institute indicates that the greatest potential anticancer submits garlic, and red kale, carrots, parsley, and of fruits: blueberries, strawberry, cherries, plums, grapes (Barnea M. and Calcin A., 1979).

A method of prophylaxis and treatment of patient with malignant disease is the vegetarian.

There are four types of arrangements:

1. Regime I in which I consume eggs, dairy, meat, fish. In this scheme finds moderate carbohydrate assimilation, optimal intake of unsaturated fatty acids, intake of vitamins and antioxidants.

2. Regime II egg-lacto-vegetarian, which includes the plant and milk, dairy products and eggs. In this regime of calorie intake and energy needs is limited.

3. Lacto-vegetarian regime involves only consumption of milk and dairy products without eggs. This scheme may experience problems with nutrition levels decreased plasma iron and zinc.

4. Strictly vegetarian regime involves tough vegetable consumption without any product of animal origin. That can lead to metabolic imbalances with major deficiencies of calcium, vitamin D, iron, zinc, vitamin B2, vitamin B12 and protein.

Vegetarian regime gives a higher average life and a lower frequency of degenerative diseases, but the total lack of protein and fats make big disadvantages. Therefore this scheme WHO recommends a minimum quantity of protein 50-60g/day fixed plant or animal origin. Vegetarian regime provides the necessary carbohydrate metabolites slow with

fruit, vegetables, cereals, bread, and the vitamins and minerals and antioxidants from fruit and vegetables (D'Adamo I.P. and Whitney C., 2001).

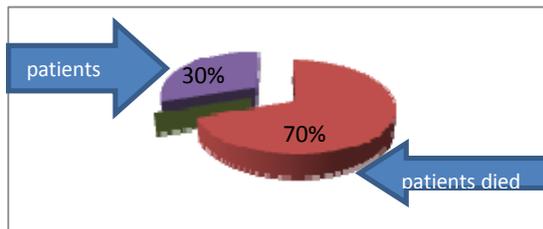
## MATERIALS AND METHODS

We performed a statistical study in Hospital Municipal Arad, Department of Intensive Care, a group of 140 patients, operated with different digestive cancer sites (gastric, colon, biliary pathways, liver) stages II and III, aged between 40-85 years of both sexes, during 2004-2008. The patients were at home with external indications and therapeutic diet. A lot of patients were divided into two subgroups.

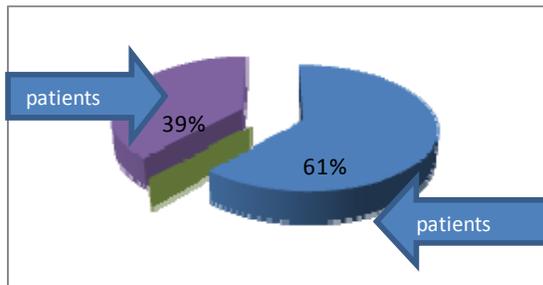
First subgroup contains a number of 70 patients who were cured external condition and received treatment with normal diet. Subgroup second contains the whole number of 70 patients who were cured in a day school, but that the indications recommended treatment was a vegetarian, alternate between the four schemes described.

## RESULTS AND DISCUSSIONS

In subgroup I of 70 patients, 49 died (70%) and 21 patients survived (30%).



In subgroup II of 70 surviving patients investigated 53 patients (61.5%) and 27 patients died (39%).



We observed a significant difference in survival subgroup II, 39% where it was recommended and respected vegetarian alternate arrangements, compared to the group that did not indicate the procedure.

## CONCLUSIONS

The influence of diet on cancer treatment and induce major is being marked by a series of food with high content of free radicals: red meat, sugar, excess, fried eggs, fried potatoes, foods in brine, tobacco, food additives and preservatives.

General mechanism of protection against cancer diseases is available through the use of food bio-oxidants: vitamins A, B, C, E, mournful, glutathione, selenium etc.

Vegetarian alternate arrangements would seem to be a solution in the prevention and treatment of cancer.

It is time for humanity to make substantial efforts to remove possible toxic substances with carcinogenic effect of diet and to reduce possible pollution of food and environment.

## REFERENCES

- M. Barnea, Al. Calcin, 1979 , Ecologie umană, Ed. Medicală
- Denisa Mihele, 2008, Igiena alimentației, Ed. Medicală,
- D' Adamo I.P. Whitney C., 2001, Alimentația adecvată celor patru grupe sanguine, Ed. Salness, Timișoara,
- Hocman G., 1989, Prevention of Cancer: Vegetables and Plants – Compendium of Biochemistry Physiology