

## CANCER & DIET

\* Mrs. Swati Ashok Mahajan

**Introduction:** Cancer is an important disease since ancient times. Large number of people are unable to get treatment because of high cost and less chances of recovery. Cancer is uncontrolled growth of cells that are derived from specific organ or tissue. The process of development of cancer cells or tissue is called carcinogenesis. In the cancer cells the DNA is altered and cells multiply to form a tumor. In the initial stage normal cells are transformed in to cancer cells, by the action of virus or cancer producing chemicals or by some unknown agents. The development and progress of specific type of cancer is depend on environment, individual and genetical factors.

Cancer cells are of two types. Malignant cells and Benign cells. Malignant cells will spread allover the body and grow rapidly sometimes within a year. Benign cells grow slowly in the body and show localized effect and development takes place as long as ten years. The faster growing cancers are stomach, kidney, lungs, skin, leukemia and testicular cancers. Slowly growing cancers are Breast, uterous and large intestine.

As per WHO survey cancer annually affects 9 million people and causes 5 million deaths and is second most common cause of death. Medical advances means that to 1/3 of all cancers are preventable and a further 1/3, if diagnosed sufficiently early are potentially curable and more over the remaining 1/3 of the cancer patients can bring about substantial improvement in the quality of life.

Three main sub types of cancers are

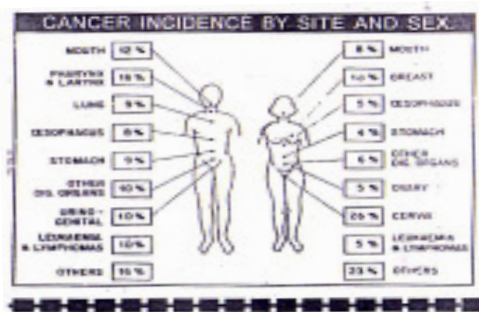
1. Sarcomas are cancers of the connective and supportive tissue of the body such as bone cartilage, muscles and fat, nerve, blood vessels and lymphatic tissue.
2. Carcinomas are cancers of epithelial tissue such as skin, lining of body cavity and organs, glandular tissues like thyroid and breast.
3. Leukomia & Lymphomas are cancers of the blood forming tissues and lymph nodes respectively.

Area	Factors	Symptoms
Oral Cavity	Tobacco chewing,	Hoarse voice, visible ulcer,
Lip, Throat	smoking, Gutka, Pan masala chewing, alcohol	difficulty in swallowing, difficulty in opening of mouth, red and white patches inside the mouth
Breast	Early and late marriages,	Pain in breast (with and

avoidance of breast feeding, without lump), inversion of nipples, swelling of the same arm, redness of breast

Lungs	Smoking, pollution, exposure to asbestos and some metallic products (factory workers)	Cough and breathlessness, chest pain, blood in sputum, pains in shoulders and arms
Skin	Exposure to sun, contact with coal tar ointment, people who work with tar and dyes	Black patches some time dark only over the exposed area of the body with burning and irritation
Stomach	Salting foods, pickling	Pain in upper abdomen, vomiting
Liver	Patient of cirrohsis, alcoholism, vital hepatitis, any chronic liver disease, prolonged exposure to radiation	Enlarged liver, pain and tenderness over right upper abdomen, occasionally jaundice
Blood	Radiation, smoking, chemical treatment for other malignance	Anaemia, fever,pains in joints, enlarged spleen and liver, bleeding from other sources
Kidney	Smoking, taking drugs	Blood in urine, pain in abdomen
Uterus	Childrenless and unmarried women, obesity and hyper tension, diabetics	Bleeding after menopause, discharge from vagina

### Ratio of Cancer in Human Body



According to WHO (1990) Developed countries cancer is 20%(Colon, prostate,kidney, lungs and breast cancers are more) Whereas in developing countries the ratio is 5%(Oral,oesphagous, breast and uterus cancers are more)

**Country**  
Iran  
China  
America

**Cancer types**  
Intestinal  
Ear , nose, throat  
Breast

\* Lecturer, Smt.Dankuwar Mahila Mahavidyalaya, Jalna (M.S).

## Japan

Cancer is currently the cause of one tenth of all deaths (WHO). In the Western world cancer is the second leading cause of death in adults. Children between the age of 1 and 14 also suffer from this menace, however it is still rare in younger generation. In UK cancer afflicts approximately 1 in 650 children. The incidence of cancer varies considerably area wise. Hungary has 246.5 Cancer in males in 100,000 population which is one of the highest figures in contrast to 83.5 in Mexico one of the lowest in the world. As per Cancer aid society, out of 100 per cent cancer patients it is observed that 40 % of cancer patients are attacked by use of tobacco, pan, beer, smoke, drugs and gutka etc., where as 30-60 % of patients are attacked by ignorance and infectious food intake. Even though the risk of cancer is increased by lack of physical activity.

According to American Institute of Cancer Research centre, Balanced diet, control in body weight and Regular exercise will reduce the risk of cancer by 30%. Cancer can be detected in 80% by self-detection and observation up to 21 days, one can confirm by one of the following test Pathology test, blood test, CT scan, MRI-scan and biopsy, where as rest of 20% patients can be cured by nutritional diet

**Treatment of cancer:**

Treatment of cancer consist of two ways

A. Medical therapy

B. Nutritional status of diet

**A). Medical Therapy:** Cancer is treated by four methods

1. Radiation therapy

2. Chemo therapy

3. Surgery

4. Combination of all these therapy (depend upon the stage of cancer)

**B). Nutritional status of diet:** Cancer is caused by damage to healthy body cells. This damage is mainly caused by unstable oxygen molecules called free radicals, which 'oxidise' body cells. It happens everytime you breath. Powerful combination of nutrients and enzymes that help neutralize free radicals before they can attack healthy cells. Consuming anti-oxidant as a natural dietary suppliment is the best, simplest way to meet the anti-oxidant requirements of our body.

Study suggested that people who eat more fruits and vegetables containing these anti-oxidants have a lower risk of cancer. However vegetables and fruits are complex foods containing more than 100 beneficial vitamins, minerals and fibers etc

**Some sources of anti-oxidants:**

**Beta-carotene :** Beta carotene is very much

## Stomach

important for body cells specially lungs, throat, esophagus and prostate glands to keep healthy and low risk of liver cancer. Sources of beta-carotene are cod liver oil, dark green vegetables, yellow and orange fruits and vegetables like carrot, papaya, tomato, spinach, pumpkin and mango etc It is observed that consumption of one carrot every day reduces the risk of lung cancer by 50%. Lycopene is found in tomato, watermelon and guava which reduces cancer. Cooked tomatoes are better than raw ones (Kamala Sohoni)

**Ascorbic acid or Vitamin-C:** Use of high doses of vit-c to prevent the cancer (oesophagus and stomach) because of nitrates. Sources are Amla, guava, lemon and orange, drumstick fruits, strawberry, dark green and deep yellow color vegetables, sprouted pulses. As per WHO survey, Lemonoids present in skin of citrus fruits protects the Lungs cells and reduces cancer and also activates liver function. It is observed that consumption of half katori cooked, sprouted pulses daily reduces the risk of Prostate and Breast cancer (Kamala Sohoni).

**Vitamin-E:** It increases endurance by reducing damage to tissue by oxygen radical. It prevents the carcinogenic effect of N-nitrous compound. Sources are vegetable oils, hydrogenated fats, whole grains, dark green leafy vegetables and nuts, legumes and human milk. In Asian countries Breast cancer death rate are less as the consumption of Soybean is more. Cereals and Palmoil rich in Tocotrinol reduces the breast cancer (WHO)

**Selenium :** It has anti-carcinogenic property, low selenium concentration in body is probable risk factor in human cancer. Sources are meat, seafood and cereals. Whole grains particularly wheat germ, bran, onion, garlic and mushrooms. Study conducted by North Carolina univ of America, consumption of Garlic reduces the risk of stomach cancer by 10-15 %.

**Glulathione:** It is a major anti oxidant substance present in food. It is reported to be very active against carcinogenic action of aflatoxin. A highly potent fungal toxin. Sources are high protein foods specially sulphur containing aminoacid e.g Peanuts, certain grains.

**Cruciferous Vegetables:** study suggested that cabbage family contain sulphur. It has protective effect against cancer. Sources are cabbage, cauliflower, Broccoli. These vegetables contain chemicals like indoles and aromatic isothiocyanates one or more of which may be responsible for the protective effect. They help balance the flow of estrogen in the body. Study observed that intake of Cabbage once in a week prevents intestinal cancer can be reduced by 66%.

**Flavonoids and Catechins:** found in green and black tea. Chinese women who drink green tea have a low incidence of the disease.

**Uric acid:** It is a strong anti oxidant present in human blood in high concentration. Uric acid is also present in human saliva. The low uric acid level may be a risk factor for smokers catching lung cancer. Sources are grains and legumes.

**Phenolic acid:** it blocks the action of a number of carcinogenic agents. Sources are garlic, onion, apple, groundnut, grapes, cashewnut and coffee.

**Fibers:** fibers can provide protection against development of Colon cancer. Sources are green leafy vegetables, beans and other vegetables. It plays important role in digestion of food, and elimination of undigested food through alimentary canal. Insufficient supply of fibers in diet will leads to indigestion of foods and develops into toxins like 'Diverticulosis' which leads to cancer. It is observed that in developed countries as the diet is of low fiber food, because of intake of refined foods intestinal cancers are prevalent and reverse trend observed in undeveloped countries. Turmeric plays important role in prevention of cancer. It is observed that consumption of 1.5 gm turmeric for 15 to 30 days will helps in control of cancer.

In countries like Australia, America and Canada where beef is consumed a lot, colon cancer is observed. Where as in Latin America, New Zealand colon cancer is low because of low beef intake

#### **Prevention of Cancer:**

- Reduce the consumption of saturated and unsaturated fats to about 30 % of total calories so that one can reduce the breast and colon cancer.
- Minimize consumption of food preserved by salt pickling reduces stomach cancer.
- High intake of meat, specially red meat, mutton,

beef and pork will lead to colon cancer.

- High intake of alcoholic beverages plus tobacco will leads to pancreatic, esophagous, oral cancers.
- Injection of food contaminated by aflatoxin leads to liver cancer.
- Use of food additives and food colors develops cancer e.g sweet supari and ani seed.
- Avoid deep fried foods, high fat foods and dairy products.
- Do not consume to hot and too cold foods in diet.
- Avoid roadside foods, packed perishable foods.
- Foods wrapped in news paper or use of colored poly bags to carry foods are to be avoided.
- Personal hygienic should be maintained
- Not to be exposed in direct sunlight for 2-3 hours at noons.
- Artificial colors should not be used on our body e.g holi color, Makeup color
- Curd: contains Lacto bacillus acidophilus that helps in prevention of blood cancer.
- Choose baked and broiled foods instead of fried foods.
- Be physically active doing exercises regularly.
- Be at least moderately active for 30 minutes or more on most days of the week.
- Stay within your healthy weight range.

#### **Avoid food additives which have carcinogenic**

<b>effect</b>	<b>Product</b>	<b>Additive</b>
	Coffee & Tea	Coal tar dye
	Dal	Coal tar dye
	Sweets	Metanil yellow, Rhodamin B
	Saunf	Malachite green
	Edible oil	Mineral oil
	Brinjal	Carbofuran
	Cauliflower	Phosphomidone II
		Methyl parathion III

#### **References-**

1. Cancer Aid Society's Web site at WWW.Canceraidocietyindia.org
2. Advanced Text Book on Food & Nutrition. By Dr.M.Swaminathan
3. Nutrition  
(Principles & Application in Health Promotion)  
By Carol west Suitor & Merrily Forbes Crowley
4. Your guide to Health, By. Clifford R. Anderson
5. Aahar Gatha, By, Dr. Kamala Sohoni
6. Sakal Daily News paper Thursday 15th May 2003
7. From The Times of India, Thursday, 24th Feb, 2005