
بنام خداوند جان و خرد


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INTRODUCTION

- Estimates show that annually there are over 14 million cancer cases and 8 million cancer deaths worldwide.
- Survival rates are improving, but over half a million people die from cancer each year in the U. S alone.
- Cancer outranks cardiovascular disease as the number one cause of death in the United States for those under the age of 85.

- Both screening and prevention can reduce mortality from cancer.
- Prevention strategies focus on modifying environmental and lifestyle risk factors that promote cancer.
- It is estimated that 50 percent of cancer is preventable
- Multiple cancer risk factors have been identified .
- Tobacco use, excess weight, poor diet, and inactivity account for two-thirds of all cancers in the U.S

- In one study, nine modifiable risks were identified as the cause of 35 percent of cancer deaths worldwide: smoking, alcohol use, diet low in fruit and vegetables, excess weight, inactivity, unsafe sex, urban air-pollution, use of solid fuels, and contaminated injections in health care settings

- The International Agency for Research on Cancer (IARC) has identified and tabulated over 100 human carcinogens
- Lifestyle factors have been linked to a variety of malignancies, including the most common in the developed world: lung, colorectal, prostate, and breast cancer

- In a longitudinal study, participants who had all four lifestyle factors (never smoking, body mass index [BMI] <30, physical activity >3.5 hours weekly, prudent diet) had approximately one-third the risk of cancer compared with those who had none of these factors

TOBACCO USE

- Tobacco use is the most preventable cause of cancer and accounts for 21 percent of worldwide total cancer deaths.
- Approximately one-half of all smokers die of a tobacco-related disease, and adult smokers lose an average of 13 years of life due to this addiction

- It is the strongest risk factor for lung cancer, increasing risk 10- to 20-fold. Smoking is also implicated as a causative factor for leukemia as well as cancers of the oral cavity, nasal cavity, paranasal sinuses, nasopharynx, larynx, esophagus,pancreas, liver, stomach, cervix, kidney, large bowel,and bladder

- Significant health benefits accompany quitting, even for longtime tobacco users. Smoking cessation leads to reduced risk of most tobacco-related diseases and a decrease in all-cause mortality.

Tobacco prevention and cessation

- It is crucial to both prevent initiation and promote cessation of tobacco use given the tremendous harm of tobacco dependency.

- Programs and policies that reduce youth initiation and facilitate smoking cessation must be implemented in both clinical and community settings.

ENVIRONMENTAL EXPOSURES

- Potentially modifiable or avoidable environmental contributors to increased cancer incidence include exposure to excessive solar radiation or to artificial ultraviolet radiation, air pollution, radon gas in enclosed environments, and arsenic in drinking water.

Excess sun exposure, artificial ultraviolet radiation

- Over one million cases of skin cancer, including basal cell and squamous cell carcinoma, are diagnosed each year.
- Radiation from the sun is the primary cause of both melanomatous and non-melanomatous skin cancer.
- Ultraviolet exposure from tanning beds has been classified as a human carcinogen, with a 75 percent increase in risk for melanoma.

Recommendations for sun/ultraviolet protection

- All individuals should limit the time spent in the sun , especially between the hours of 10 AM and 4 PM
- wear hats, sunglasses, and other protective clothing, and use sunscreen.
- In addition, WHO has recommended that tanning bed use should be avoided entirely(with a 75 percent increase in risk for melanoma).

Air pollution, Radon, Arsenic

- Diesel exhaust and particulate matter air pollution have been associated with increased risk of lung cancer.
- The small increase in lung cancer risk associated with increased indoor **radon** levels is described separately.

Air pollution, Radon, Arsenic

- Long-term exposure to elevated **arsenic** levels in drinking water is associated with an increase in the risk of certain cancers, with strong evidence supporting a dose-response relationship for bladder cancer.

PHYSICAL ACTIVITY

- Decreased physical activity appears to increase the risk for cancer.
- Over 60 percent of United States adults are not regularly active, including 25 percent who are almost entirely sedentary.
- It is estimated that sedentary lifestyle is associated with 5 percent of cancer deaths.

PHYSICAL ACTIVITY

- For people who do not smoke, exercise is one of the most important modifiable risk factors (along with weight control and dietary choices) and may partially attenuate the adverse effects of certain other risk factors.

PHYSICAL ACTIVITY

- In a Japanese cohort, physical activity was associated with a decreased risk for colon, liver, pancreatic, and stomach cancer. The most compelling data are in colon and breast cancer.

OBESITY

- Excess weight is associated with an increased risk of many types of cancer. Obesity has been estimated to cause 20 percent of all cancers.

OBESITY

- absence of excess body fatness had a cancer preventive effect in many malignancies, including esophageal adenocarcinoma, gastric cardia, colorectal, hepatocellular, endometrial, ovarian, gallbladder, pancreatic, renal cell, thyroid, and post menopausal breast cancers, multiple myeloma, and meningioma

DIET

- Overall, dietary fat, fruits, vegetables, and fiber have not consistently been shown to affect cancer risk.
- However, certain dietary patterns, as well as intake of other nutrients, particularly certain micronutrients, may offer a degree of protection against certain malignancies.

- Inconsistent results of nutritional (diet or supplement) studies can be attributed to multiple factors ;

- poor adherence to the dietary intervention, insufficient follow-up time, wrong dose or form of the nutrient.

- Additionally, studies tend to focus on one nutrient in isolation, when whole foods or the full composition of a diet may correlate better with cancer risk than any single component.

Dietary components

- Dietary fat
- Red meat
- Fruits and vegetables
- Dairy
- Fiber
- Glycemic load
- Omega-3 fatty acids and dietary fish

- No clear link has been found between total fat intake and colon or breast cancer; the data are somewhat more convincing for prostate cancer.

- Despite suggestions from case-control studies that high intake of fruit and vegetables is associated with a significant reduction in cancer, prospective studies have found less consistent results.

- The relationship between dairy intake and ovarian cancer is uncertain. Several studies suggest that intake of low-fat dairy products may protect against breast cancer, mainly in premenopausal women.

- Fiber intake is associated with a reduction in the risk of heart disease and diabetes, but its effect on cancer risk reduction is less certain.
- Several large epidemiologic studies have reported a significant inverse associated between fiber intake and colorectal cancer risk.
- An increased risk for certain cancers has been associated with diabetes.

- Patients with diabetes have a twofold or greater risk of cancers of the liver, pancreas, and endometrium and a slightly lower but increased risk for cancers of the colon, breast and bladder.

- The risk of prostate cancer is decreased in patients with diabetes.

- there is no association between omega-3 fatty acids and cancer risk.
- High intake of red meat has been associated with increased risk of colon cancer.

VITAMINS AND MICRONUTRIENTS

- Multiple observational and prospective studies of the use of supplemental vitamins and minerals (vitamin C, E, or beta-carotene) to prevent cancer have been disappointing.

- Studies of the relationship between vitamin D intake or serum levels of 25(OH)D and cancer risk have been inconsistent.

Calcium

- Increased calcium intake has been linked to reduced risk of colorectal cancer.
- Case-control and prospective studies of calcium and prostate cancer have reported inconsistent results.

Calcium

- The risk of prostate cancer may be increased with high, but not moderate, calcium intake.
- There may be a minimum level of calcium intake, around 700 mg/day, that confers protection against colorectal cancer without significantly increasing prostate cancer risk.

Selenium

Although human epidemiologic studies and studies h ave suggested a potential protective effect of selenium on cancer incidence, randomized controlled human trials have not found a beneficial effect of selenium on overall cancer mortality or incidence.

Folate and other B vitamins

- The role of folate or folic acid in cancer prevention is uncertain.
- Folate has been associated with a decreased risk for colon and other cancers, especially in individuals who consume alcohol, in observational studies. However, some randomized trials have suggested the possibility that folic acid may increase risk for cancer.

- An inverse relationship was found between folate intake and the risk of developing adenomatous polyps in the combined analysis of data.

- Serum levels of other B vitamins have been associated with reduced cancer risk in observational studies

- Dietary folate, but not vitamin supplementation, was associated with a reduced risk for pancreatic cancer in a Swedish cohort of 82,000 men and women.

IRON & ALCOHOL

- Observational studies suggest that increased iron stores or dietary iron may be associated with increased risk for cancer.
- Excess alcohol consumption increases the risk of multiple cancers.
- At an average follow-up of 7.5 years, 10 g/day of alcohol (one drink) increased the risk for cancers of the oropharynx, esophagus, larynx, rectum, liver, and breast.

INFECTIONS

- It is estimated that 17 percent of all new cancers worldwide are due to infections.

- Human papillomavirus (HPV) with cervical and other anogenital cancers as well as squamous cell cancers of the head and neck.

INFECTIONS

- Hepatitis B (HBV) and C (HCV) with hepatocellular carcinoma.
- Human T-cell lymphotropic virus (HTLV-I) with adult T-cell leukemia.

- Human immunodeficiency virus (HIV-I) with Kaposi sarcoma as well as with non-Hodgkin lymphoma and with multiple non-acquired immunodeficiency syndrome (AIDS)-defining malignancies
- Human herpes virus 8 (HHV-8) with Kaposi sarcoma and primary effusion lymphoma

- Epstein-Barr virus (EBV) with Burkitt lymphoma
- The bacterium Helicobacter pylori with gastrointestinal malignancies including gastric cancer and mucosa-associated lymphoid tissue (MALT) lymphomas.

For some viruses, interventions are available to prevent or delay progression to cancer after infection

- HPV vaccination is recommended for both girls and boys, as well as for young women and young men who were not vaccinated during childhood.
- Retroviral therapy for HIV infection has greatly alter ed the course of disease and associated cancers. Antiretroviral therapy (ART) has been shown to reduce the incidence of AIDS-related lymphoma

- Decreasing the hepatitis B viral load by treatment with interferon or nucleoside/tide analogues in patients with chronic hepatitis B infection was associated with a decreased risk for hepatoma.
- Excess alcohol use may play a role in cancer development in patients with chronic HBV and HCV infections and should be avoided.

CHEMOPREVENTION

- **Tamoxifen**

is approved in the United States for the prevention of breast cancer in high-risk women. serious adverse events, including endometrial cancer and thromboembolic events

- **Raloxifene**

that is approved for the prevention of osteoporosis and for breast cancer prevention in postmenopausal women at high risk for invasive breast cancer.

- **Aromatase inhibitors**

such as anastrozole, letrozole

Prostate cancer and 5-alpha reductase inhibitors

Aspirin and other antiinflammatory drugs

Several theories have been proposed aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) are effective in **reducing colorectal cancer risk** and possibly effective for other cancers(**breast cancer**)

Other drugs

Although evidence is not compelling enough to suggest initiation of other drugs for cancer prevention, observational studies and limited experimental evidence suggest a possible future role for other drugs

- Metformin
- Warfarin
- Statins


سپاس از توجه شما