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CANCER: THE BEST TREATMENT IS PREVENTION – A SHORT COMMENTARY

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ABSTRACT

Cancer is a major public health problem these days. Annually, 500,000 people die of cancer in India. When it comes to Cancer, prevention and early detection is the key. Lifestyle related factors are the most important and preventable among the environmental exposures that can lead to cancer. Tobacco consumption (chewing tobacco or smoking tobacco) accounts for 50% of all cancers in men, while dietary practices, reproductive and sexual practices for 20-30% of all cancers. Most of the cancers have some relationships with diet. The various ways of preventing cancer are losing eight, eating healthy diet, exercising regularly, tobacco cessation, preventing harmful environmental exposure and vaccination (Hep-B and HPV).

INTRODUCTION

Cancer is a major public health problem of India. With a million new cases being reported every year, cancer seems to be tightening its grip on India. Annually, 500000 people die of cancer in India and this number is expected to rise to 700,000 by 2015 (<http://timesofindia.indiatimes.com/life-style/health-fitness/health-news/Cancer-incidence-to-rise-five-fold-in-India-by-2025/articleshow/29823316.cms>). Cancer is one of the leading causes of deaths, which has nearly three million patients suffering from the disease. Lung and oral cancers are the most common among men while cervix and breast cancer are most common in women- they account for 50% of all cancer deaths in India (<http://cancerindia.org.in/cp/index.php/know-about-cancer/statistics#references>). When it comes to Cancer, prevention and early detection is the key. If detected early, treatment is effective and cheaper. However, if detected late, it is more expensive (can even lead to bankruptcy) and also reduces the chances of survival.

The economic impact of cancer is significant and is increasing. The total annual economic cost of cancer in 2010 was estimated at approximately US\$ 1.16 trillion (<http://publications.iarc.fr/Non-Series-Publications/World-Cancer-Reports/World-Cancer-Report-2014>). Lifestyle related factors are the most important and preventable among the environmental exposures. Tobacco consumption (chewing tobacco or smoking tobacco) accounts for 50% of all cancers in men (Chatterjee, 2009), while dietary practices, reproductive and sexual practices for 20-30% of all cancers (<http://www.rctvm.org/lifestyle%20and%20cancer.htm>). Most of the cancers have some relationships with diet. Predominant among them are cancers of the upper aero digestive tract (mouth, throat, oesophagus and lungs), stomach, large intestine, and breast cancer in women. Another important risk factor for cancers is obesity. Reports from the International Agency for Research into Cancer and the World Cancer Research Fund (WCRF) have shown that the strongest evidence exists for an association of obesity with the following

cancer types: endometrial, esophageal adenocarcinoma, colorectal, postmenopausal breast, prostate, and renal, whereas the less common malignancies are leukemia, non-Hodgkin's lymphoma, multiple myeloma, malignant melanoma, and thyroid tumors (De Pergola, 2013). Early age at menarche, late age at first pregnancy, and late age at menopause are all associated with a 1.5- to twofold increased risk of breast cancer (McPherson *et al.*, 2000). In addition, nulliparity increases the risk of ovarian and possibly endometrial cancer. Chronic infection with some viruses, bacteria, and parasites represents a major carcinogenic factor for humans, in particular in developing countries like India. Common agents encountered are hepatitis B and hepatitis C virus related liver cancer, human papilloma virus related cervical cancer, and Helicobacter-related stomach cancer. There are several other risk factors for cancer like exposure to sun, radiation effects, environmental and occupational factors. Additionally the role of genetics cannot be ruled out as familial aggregation has been found in cancers of the breast, colon, prostate, retinoblastoma and lung.

Cancers however life threatening they may be, a large number of them can be prevented or detected at an early stage. Many cancers can be screened through meticulous history taking, a watchful examination and a few investigations like PAP test, mammography, occult blood in stools, ultrasound and X-Rays. Detection at an early stage increases the chance of success of treatment and survival many fold. There are many markers that can detect cancers. Usually these markers are tested in patients who are at a high risk of developing cancer. However, the best strategy is cancer prevention. The following ways can prevent various kinds of cancers in individuals over a lifetime.

Weight loss/control

The Body Mass Index (BMI) cut offs for obesity in Asians is lower than the western counterparts. World Health Organization (WHO) has suggested that the normal cut off for Asians should be 23 Kg/m² and abdominal girth measurement should be less than 80 cm for females and 90 cm for males (Stegenga *et al.*, 2014). Thus, Indians should focus on keeping these parameters within normal range as an obese person is at a higher risk of developing breast (Renahan *et al.*, 2008) and colorectal cancer (Frezza *et al.*, 2006). Crash diet is not recommended and losing around 0.5 kg per week is the recommended norm. Dietary habit plays an important role in losing weight. A reduction of 500 kcals/day, having 3 major and 3 small healthy meals and avoiding empty calories like colas, fried food and sugary foods is the key.

Eating healthy diet

A diet high in fat and low in fiber predispose you to breast (Mattisson *et al.*, 2004) and colorectal cancer (Frezza *et al.*, 2006). Studies also suggest that low folic acid intake can also be a factor in developing colon cancer (Ryan-Harshman, 2007). Additionally, if a person is malnourished then there is a chance of acquiring an infection and that can also increase ones susceptibility of developing cancers like liver cancer and cervical cancer. One should have a balanced meal including all food groups for wholesome nutrition like whole grains, fruits, vegetables, nuts, low fat dairy products, pulses, eggs and chicken/white meat. Deep fried, caramelized, high in sugar foods should be minimized and multivitamins should be taken after consulting the physician.

Regular exercise

At least 30 minutes of moderate intensity physical activity should be performed on most days of the weeks (minimum- 5 days a week) (<https://www.cdc.gov/physicalactivity/basics/adults/>). Moderate intensity physical activity includes brisk walking, swimming, and jogging. Weight training can also be done on 2 days in a week with a rest day in between. Yoga is also beneficial in many aspects. It reduces the blood pressure, calms the mind and has many other benefits for one's health. Regular exercise is a mood elevator, calorie burner and washes out the toxins from the body thus is highly beneficial.

Tobacco cessation

Tobacco is the most important identified cause of cancer and is responsible for about 40 to 50% of cancers in men and about 20% of cancers in women (Chatterjee, 2009). In India, oral cancer caused by chewing of tobacco is the leading cause of death in both males and females. Lung cancer is another major killer that is also caused mainly by smoking. Tobacco use also increases the risk for cancers of the mouth, lips, nose and sinuses, larynx, pharynx, esophagus, stomach, pancreas, kidney, bladder, uterus, cervix, colon/rectum, ovary (mucinous), and acute myeloid leukemia. The grim reality of tobacco use is that the prevalence of the same is ever increasing in children and adolescents. In a study done by Narain *et al.* (2011) in north Indian school children, it was reported that the average age of initiation of tobacco use was 12.4 years and the prevalence of any kind of tobacco use amongst children was 11.2%. Thus tobacco cessation activities should focus both on adults and children.

Environmental/ occupational exposure

Many chemicals like dyes, arsenic, paint, benzene, pesticides etc can increase the risk of developing cancers like skin or testicular cancer. For healthcare professionals, exposure to blood or any other body fluid that can transmit Hepatitis B virus can increase their risk of developing liver cancer. Thus workplace safety is imperative and protective gear should be worn while working in hazardous environment.

Vaccinations Preventing Cancer

There are two vaccines that can prevent cancers (Kane, 2012). One is Human Papilloma Virus Vaccine (HPV vaccine) which protects women against cervical cancer. It should be administered to all adolescent females at the age of 11-12 years and catch up vaccination can be given up to 45 years of age. Second anti-cancer vaccine is Hepatitis B (HepB) vaccine- it protects against liver cancer in both men and women. All newborns should be vaccinated against hepatitis B. Additionally, all healthcare providers and close contacts of patients of hepatitis B should also be vaccinated. Cancers are new age epidemic that are on the rise majorly due to unhealthy lifestyles. Simple preventive measures can go a long way in preventing this dreaded disease.

Conflict of interest: The authors declare no conflict of interest.

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