Occupational Medicine & Health Affairs
ISSN: 2329-6879

Mini Review Open Access

A Brief note on Cancer and its Treatment

Asif Bilal[1]*, Nimra Naveed[2], and Muhammad Sultan Haider[1]

[1]*Department of Zoology, University of Lahore, Sargodha Campus, Sargodha, Pakistan*
[2]*Department of Zoology and Fisheries, University of Agriculture, Faisalabad, Pakistan*

Abstract

Cancer is a condition in which damaged body cells grow out of control. According to the World Health Organization's February 2017 fact sheet, cancer is one of the leading causes of mortality worldwide, accounting for 8.8 million deaths in 2015, or one out of every six deaths. In 2012, in Pakistan, over 63,415 males and 85,590 females were diagnosed with the disease. In addition to smoking, the following are cancer risk factors: Drinking a lot of alcohol, excessive body fat, a lack of physical activity, malnutrition. Types of cancer according to cause of death are lung cancer, colon and rectum cancer, liver cancer, stomach cancer and breast cancer which became cause of death of 1.80 million deaths, 935000 deaths, 830000 deaths, 769000 deaths, and 685000 deaths respectively. Chemotherapy uses drugs that target quickly dividing cells to kill malignant cells. When a person is diagnosed with cancer, the prognosis is determined by whether the disease has spread, as well as the type, severity, and location of the cancer.

Keywords: Cancer, Deaths; Smoking; Chemotherapy; Severity

Background

Cancer is a condition in which damaged body cells grow out of control, depriving normal body cells of nourishment and the ability to operate properly. According to the World Health Organization's February 2017 fact sheet, cancer is one of the leading causes of mortality worldwide, accounting for 8.8 million deaths in 2015, or one out of every six deaths [1]. In 2019, a projected 140,690 cancer cases will be reported, with the majority of these people fighting the disease for the rest of their lives.

According to a survey conducted in 2012 on cancer prevalence in Pakistan, over 63,415 males and 85,590 females were diagnosed with the disease. Lung cancers are the most common cause of cancer-related fatalities worldwide, but breast cancer continues to be the leading cause of cancer-related deaths in Pakistan [2]. Hormonal, genetic, metabolic, immunological, and other variables all contribute to cancer risk. External causes of cancer include tobacco usage, alcohol consumption, a poor diet (malnourished or obese), radiation, and infections such as the Human Papillomavirus (HPV), Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV), H Pylori, and others [3-5].

The study's goal is to identify cancer awareness and related risk factors among patients from poor socioeconomic backgrounds, as well as to highlight the most common cancers seen in this environment. The research will also look for any other causes that people typically identify with cancer and which divert their focus away from the genuine causes [6]. Furthermore, we hope that by conducting this research, we will be able to focus on the psychosocial and financial burdens that such an illness imposes in order to stimulate financial aid and behavioural therapies for cancer patients.

Causes

Cancer has various causes, some of which are preventable. According to figures from 2014, over 480,000 individuals die in the United States each year as a result of smoking cigarettes. In addition to smoking, the following are cancer risk factors: Drinking a lot of alcohol, excessive body fat, a lack of physical activity, malnutrition.

Other types of cancer cannot be avoided. Age is currently the most major uncontrollable risk factor. Doctors in the United States diagnose 87 percent of cancer diagnoses in persons aged 50 and up, according to the American Cancer Society [7,8].

Genetic Values

Cancer development can be influenced by genetic factors. The genetic code of a person guides their cells when to divide and when to die. Changes in the genes can result in incorrect instructions, which can lead to cancer. Proteins carry many of the instructions for cellular development and division, and genes have an impact on their creation.

Some genes alter proteins that are normally involved in cell repair. This has the potential to cause cancer. If a parent carries these genes, their offspring may inherit the changed instructions. After birth, some genetic alterations can occur, and factors like smoking and sun exposure might enhance the risk [9]. Other alterations that can lead to cancer occur in the chemical signals that control how the body uses, or "expresses," specific genes.

Finally, a person can be born with a cancer predisposition. Hereditary cancer syndrome is a term used by doctors to describe this condition. Inherited genetic mutations play a crucial role in the development of cancer in 5–10% of instances [10-12].

Types

According to the National Cancer Institute, breast cancer is the most frequent type of cancer in the United States, followed by lung and prostate cancers. Non-melanoma skin cancers were omitted from these data.

Every year, more than 40,000 people in the United States are diagnosed [13,14] with one of the following cancers: Bladder, the colon and the rectal, endometrial, kidney, leukaemia, liver, melanoma, lymphoma (non- Hodgkin's), pancreatic, thyroid.

Other types aren't as frequent. There are over 100 forms of cancer, according to the National Cancer Institute [15-20]. Cancer is the largest

***Corresponding author:** Asif Bilal, Department of Zoology, University of Lahore, Sargodha Campus, Sargodha, Pakistan, E-mail: syed.asif99@yahoo.com

Received July 08, 2021; **Accepted** July 22, 2021; **Published** July 29, 2021

Citation: Bilal A, Naveed N, Haider MS (2021) A Brief note on Cancer and its Treatment. Occup Med Health Aff 9.359.

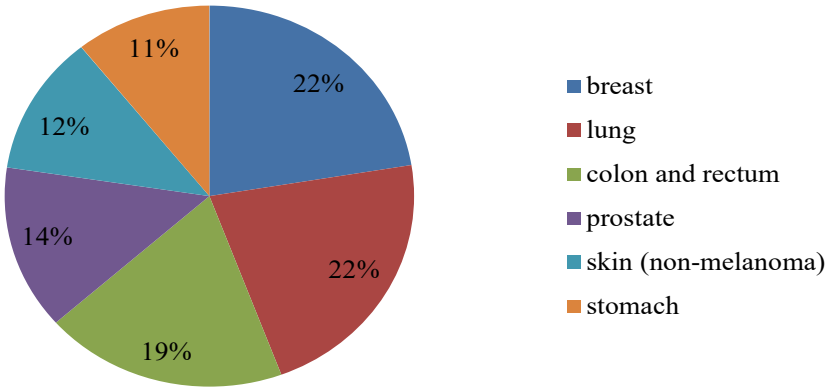

Figure 1: Top types of cancer according to cause of death

cause of death in the world, with approximately 10 million fatalities expected by 2020. (1). In terms of new cancer cases in 2020, the most common were: breast, lung, colon and rectum, prostate, skin (non-melanoma) and stomach which have 2.26 million, 2.21 million, 1.93 million, 1.41 million, 1.20 million, and 1.09 million cases respectively [21]. Please see their percentage in **(Figure 1)**.

Whereas these are top types of cancer according to cause of death are lung cancer, colon and rectum cancer, liver cancer, stomach cancer and breast cancer which became cause of death of 1.80 million deaths, 935000 deaths, 830000 deaths, 769000 deaths, and 685000 deaths respectively.

Treatment

Pharmaceutical medications and treatment methods have been developed as a result of innovative research [22]. Treatments are usually prescribed based on the type of cancer, its stage at the time of diagnosis, and the patient's overall condition.

Here are some examples of cancer treatment approaches: Chemotherapy uses drugs that target quickly dividing cells to kill malignant cells. The medications can also help reduce tumors, but they can have serious negative effects. Hormone therapy entails taking drugs that alter the way particular hormones act or prevent the body from producing them [23]. This is a typical technique when hormones play a substantial role, such as in prostate and breast malignancies. Immunotherapy is a type of treatment that boosts the immune system and encourages it to fight malignant cells by using drugs and other treatments. Checkpoint inhibitors and adoptive cell transfer are two examples of these therapies. Precision medicine, often known as personalized medicine, is a relatively recent concept. It entails employing genetic testing to discover the most effective treatments for a person's specific cancer presentation. However, researchers have yet to show that it is helpful in treating all types of cancer. High-dose radiation is used in radiation therapy to eliminate malignant cells. A doctor may also suggest that radiation be used to decrease a tumor before surgery or to alleviate tumor-related symptoms [24].

People with blood-related malignancies, such as leukemia or lymphoma, may benefit from a stem cell transplant. It entails eliminating cells that have been damaged by chemotherapy or radiation, such as red or white blood cells. The cells are then strengthened and reintroduced into the body by lab technicians. When a person has a malignant tumor, surgery is frequently part of the treatment approach. A surgeon may also remove lymph nodes to slow or stop the disease from spreading. Targeted medicines work within malignant cells to stop them from proliferating and spreading. They may also help to strengthen the immune system [25]. Small-molecule medicines and monoclonal antibodies are two examples of this therapeutics.

Discussion

Improvements in cancer diagnosis, increasing awareness of the dangers of smoking, and a decrease in tobacco usage have all contributed to a decline in cancer diagnoses and fatalities year over year. Between 1991 and 2015, the total cancer death rate decreased by 26%, according to the American Cancer Society. When a person is diagnosed with cancer, the prognosis is determined by whether the disease has spread, as well as the type, severity, and location of the cancer.

Cancer produces uncontrollable cell division. It also keeps them from dying at the end of their regular life cycle. Smoking and other lifestyle decisions, such as genetic factors, can also contribute to the disease's development. Several factors influence how DNA communicates with cells and controls cell division and death. Breast cancer is the most frequent kind in the United States, after no melanoma skin cancer. Lung cancer, on the other hand, is the largest cause of cancer-related death. Treatments are improving all the time. Chemotherapy, radiation therapy, and surgery are examples of modern treatments. Newer treatments, such as stem cell transplantation and precision therapy, benefit some people.

Breast cancer kills almost 40,000 women in Pakistan every year, and it was the most commonly reported malignancy in our survey as well. Many people assumed that discontinuing feeding too soon caused the disease, which is in line with the fact that breast feeding is known to reduce the risk of cancer. Hormonal status, nulliparity, late age at first birth, obesity, and early menarche were identified as distinct risk factors for breast cancer in a 2015 study. Patients did not show any understanding of these risk variables. Patients with a positive family history of breast cancer should be informed about regular screening so that future generations can be spared from contracting the disease.

References

1. Al-Hawary MM, Francis IR, Chari ST, Fishman EK, Hough DM, et al. (2014) Pancreatic ductal adenocarcinoma radiology reporting template: consensus statement of the Society of Abdominal Radiology and the American Pancreatic Association. Radiol 270:248-260.
2. World Health Organization. (2020) Assessing national capacity for the prevention and control of noncommunicable diseases: report of the 2019 global survey.
3. Bluemke DA, Cameron JL, Hruban RH, Pitt HA, Siegelman SS, et al. (1995) potentially resectable pancreatic adenocarcinoma: spiral CT assessment with surgical and pathologic correlation. Radiol 197:381-385.
4. Bronstein YL, Loyer EM, Kaur H, Choi H, David C, et al. (2004) Detection of small pancreatic tumors with multiphasic helical CT. Am J Roentgenol 182:619-623.
5. Cancer. (2018) World Health Organization.
6. Cancer Facts & Figures 2019. American Cancer Society. (2019).
7. Chen FM, Ni JM, Zhang ZY, Zhang L, Li B, et al. (2016) Presurgical evaluation of pancreatic cancer: a comprehensive imaging comparison of CT versus MRI. Am J Roentgenol 206:526-535.
8. de Martel C, Georges D, Bray F, Ferlay J, Clifford GM. (2020) Global burden of cancer attributable to infections in 2018: a worldwide incidence analysis. Lancet Glob Health 8:e180-e190.
9. Ferlay J, Ervik M, Lam F, Colombet M, Mery L, et al. (2020) Global Cancer Observatory: Cancer Today. Lyon: Int Agency Res Cancer.
10. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, et al. (2014) Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. Int J Cancer 136:E359–E386.
11. Fletcher JG, Wiersema MJ, Farrell MA, Fidler JL, Burgart LJ, et al. (2003) Pancreatic malignancy: value of arterial, pancreatic, and hepatic phase imaging with multi–detector row CT. Radiol 229:81-90.
12. GBD results tool. Seattle (WA): Institute for Health Metrics, University of Washington; 2020.
13. Global Initiative for Cancer Registry Development. (2020) Lyon: International Agency for Research on Cancer.
14. Hackeng WM, Hruban RH, Offerhaus GJ, Brosens LA. (2016) Surgical and molecular pathology of pancreatic neoplasms. Diagn Pathol 11:47.
15. Ichikawa T, Haradome H, Hachiya J, Nitatori T, Ohtomo K, et al. (1997) Pancreatic ductal adenocarcinoma: preoperative assessment with helical CT versus dynamic MR imaging. Radiol 202:655-662.
16. Klein AP, Brune KA, Petersen GM, Goggins M, Tersmette AC, et al. (2004) Prospective risk of pancreatic cancer in familial pancreatic cancer kindreds. Cancer Res 64:2634-2638.
17. Montesano R, Hall J. (2001) Environmental causes of human cancers. Eur J Cancer 37:67–87.
18. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) Pancreatic Adenocarcinoma. (2017) National Comprehensive Cancer Network.
19. Sarwar MR, Saqib A. (2017) Cancer prevalence, incidence and mortality rates in Pakistan in 2012. Cogent Med 4:1288773.
20. Schneider R, Slater EP, Sina M, Habbe N, Fendrich V, et al. (2011) German national case collection for familial pancreatic cancer (FaPaCa): ten years experience. Fam cancer 10:323-330.
21. SEER Cancer Statistics Review, 1975–2014. (2017) National Cancer Institute. Surveillance, Epidemiology, and End Results Program.
22. Sheridan MB, Ward J, Guthrie JA, Spencer JA, Craven CM et al. (1999) Dynamic contrast-enhanced MR imaging and dual-phase helical CT in the preoperative assessment of suspected pancreatic cancer: a comparative study with receiver operating characteristic analysis. AJR Am J Roentgenol 173:583-590
23. Siegel RL, Miller KD, Jemal A. (2017) Cancer Statistics. CA Cancer J Clin 67:7-30.
24. Tamm EP, Loyer EM, Faria SC, Evans DB, Wolff RA, et al. Retrospective analysis of dual-phase MDCT and follow-up EUS/EUS-FNA in the diagnosis of pancreatic cancer. Abdom imaging. 2007;32(5):660-667.
25. Wild C, Weiderpass E, Stewart BW, editors. (2020) World cancer report: cancer research for cancer prevention. IARC Press.