IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Cancer A Literature Overview

Dr.Galanki Vasantha[1*], Saragadam pooja pranathi [2], SSS Sri Poojitha[3], Pyla yasvita[4]

[1*]Associate Professor, Vignan Institute of Pharmaceutical Technology Vishakapatnam.

[2,3,4] IV B.Pharmacy students, Vignan Institute of Pharmaceutical Technology Vishakapatnam.

ABSTRACT

Cancer is a disease in which some of the body's cells grow uncontrollably and spread to other parts of the body. Cancer can start almost anywhere in the human body, which is made up of trillions of cells. Cancer comes in many forms and types. Cancer is the collective name given to the disease where certain cells of the person's body start dividing continuously, refusing to stop. The main thing that causes cancer is a substance we know as carcinogens. But how these develop or enters a person's body will depend on many factors. Early diagnosis and immediate medical care are of utmost importance in cancer. When diagnosed in the early stages, then the treatment becomes easier and has more chances of success. All treatment plans, however, have various side-effects. And aftercare is one of the most important aspects of cancer treatment. The objective of the present review is to search types, causes, prevention, treatment and diagnostic methods of cancer and the incorporated information might be useful for the scientists to concentrate on the priority area of research yet to be discovered.

Keywords: Cancer, Malignancy, Treatment, Melanoma

INTRODUCTION

Cancer can take several forms, such as malignancy (malignancy tumours) or neoplasms (new growth). Despite the fact that there are many different types of cancer, they all arise due to the uncontrolled expansion of aberrant cells. [(1)] Cancer is the second leading causative factor for death rate worldwide.[(2)] Globally about 9.6 million deaths were estimated in cancer . The commonest cancers are prostate cancer (1.28 million), female breast cancer (2.09 million), colorectal cancer (1.1 million), stomach cancer (1.03 million) and non-melanoma skin malignancies (1.04 million) 6, 7 . Cancer-related deaths, from most to least frequent, are due to lung cancer (1.76 million), colorectal cancer (862,000) and stomach cancer (783,000), liver cancer (782,000). Over 100 types of cancers affect humans It was predicted by Global demographic characteristics that about 420 million new cases of cancer by 2025 annually, which means increasing cancer incidence in years.[(3)]

CAUSES

1) **Diet**— Diet is considered to be responsible for one-third of all cancer cases in the United States. [4] For most forms of cancer, the quarter of the population with the lowest dietary intake of fruits and vegetables has nearly twice the cancer incidence as the quarter with the greatest consumption (lung, larynx, oral cavity, esophagus, stomach, colon and rectum, bladder, pancreas, cervix, and ovary). [5][6]

2) **Chemical or toxic compound exposures**: Benzene, asbestos, nickel, cadmium, vinyl chloride, benzidine, N-nitrosamines, tobacco or cigarette smoke (contains at least 66 known potential carcinogenic chemicals and toxins), asbestos, and aflatoxin[7]

3) **Ionizing radiation:** Uranium, radon, ultraviolet rays from sunlight, alpha, beta, gamma, and X-ray-emitting sources, and radiation from alpha, beta, gamma, and X-ray-emitting sources[8]

4) **Pathogens:** HPV, EPV (Epstein-Barr virus), hepatitis B and C, Kaposi's sarcoma-related herpes virus (KSHV), Merkel mobileular polyomavirus, Schistosoma spp., and Helicobacter pylori are the various microorganisms being investigated as in all likelihood culprits.[9]

5) **Genetics:** Human genes have been related to a variety of particular malignancies, including: Breast, ovarian, colorectal, prostate, skin, and melanoma cancers are among the most common.[10]

6)Alcoholic beverages Inflammation of the liver, cirrhosis, and liver cancer are all possible side effects. Oral and esophageal cancers are both linked to alcohol use. Alcohol use has also been linked to breast cancer.[11]

7)**Tobacco**:-Smoking causes a lot of oxidative stress, and it includes a lot of mutagens and rodent carcinogens. The body's antioxidants are depleted by the oxidants in cigarette smoke (mostly nitrogen oxides) [12]

TYPES

Cancers are divided into various types that are: 15 [13]

a) **Carcinoma**:-carcinomas begin in the tissue or skin that covers the glands and the surface of internal organs.[14] It develops into a solid tumour. Breast cancer, prostate cancer, colorectal cancer, and lung cancer are all types of cancer.[15]

b) **Sarcomas**: Sarcomas begin in the connective and supportive tissues of the body. Nerves, tendons, joints, fat, blood vessels, bone, lymph vessels, muscles, and cartilage may all produce it.[16]

c) **Leukemia's Symptoms**: Leukemia is a kind of blood cancer. It starts when healthy blood cells expand and alter uncontrolled. Acute myeloid leukaemia, acute lymphocytic leukaemia, chronic myeloid leukaemia, and chronic lymphocytic leukaemia are the four kinds of Lymphomas: Lymphoma is cancer that begins in the lymphatic system and it is a network of glands and vessels that helps to fight with infection.[17][18]Hodgkin lymphoma and Non-Hodgkin lymphoma.[19]

e) **Cancers of the Central Nervous System**: "Brain and spinal wire cancers," further to primary CNS lymphomas, gliomas, pituitary adenomas, primitive neuro-ectodermal tumours, meningiomas, and vestibular schwannomas.[20]

f) **Multiple Myeloma**: Multiple myeloma is an immune mobileular malignancy that starts offevolved offevolved in plasma cells.[21] Myeloma cells, which is probably plasma cells, accumulate withinside the bone marrow and reason malignancies. Plasma mobileular myeloma and Kahler disease are terms for the same thing.[22]

g) **Melanoma**: Melanoma begins offe volved in cells that emerge as melanocytes.[23]These are specialised cells that produce melanin, the pigment that gives the pores and pores and skin its colour. Melanomas are most typically positioned on the pores and pores and skin, despite the fact that they can also appear in distinct pigmented tissues, which encompass the eye.[24]

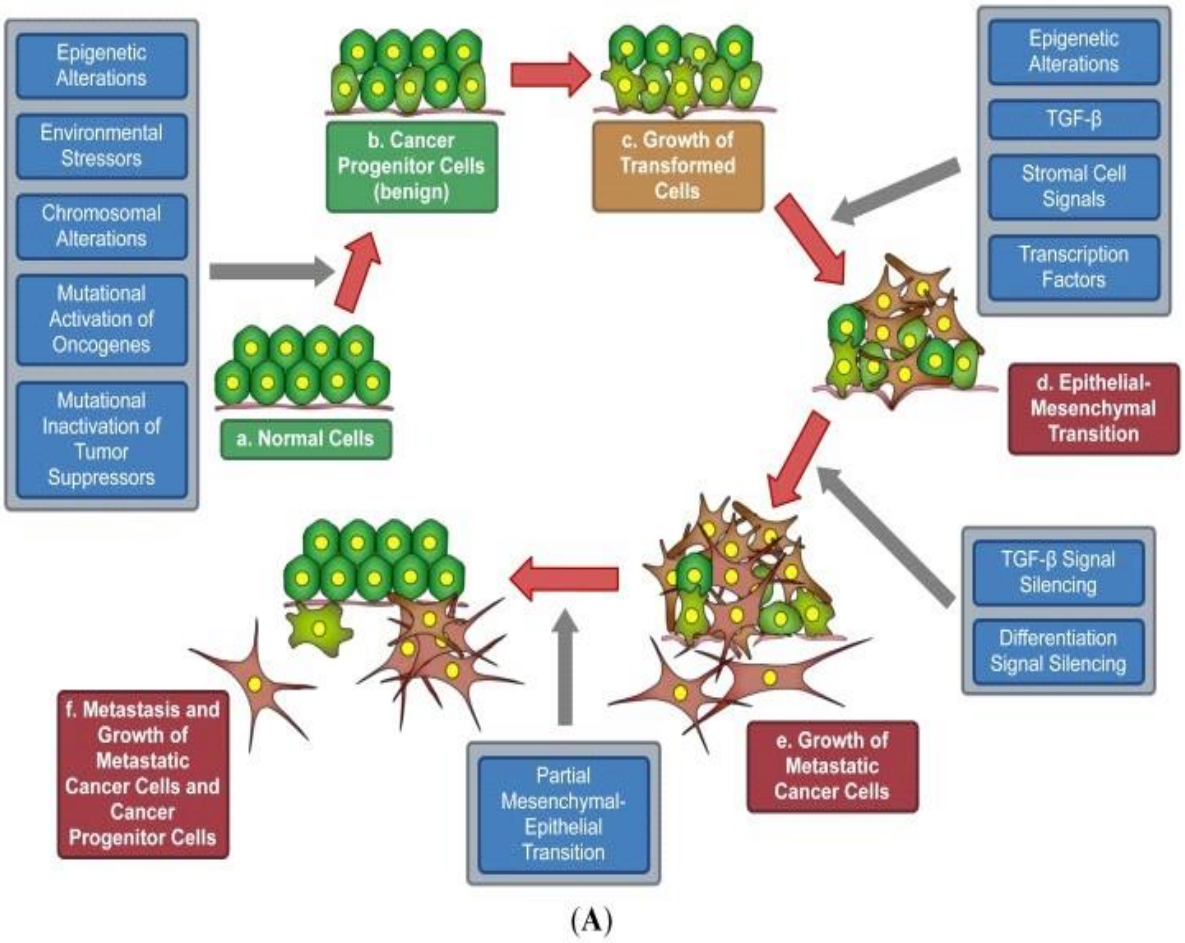
h) **Tumors of Other Types: Germ Cell Tumors**: These are tumours that begin in the cells that produce eggs or sperm.[25] This can happen anywhere in the body and might be cancerous or benign. Neuroendocrine Tumors: Neuroendocrine tumours are made up of cells that release hormones into the bloodstream in response to nerve signals.[26] It is made up of cells that release hormones into the bloodstream in response to nerve signals. These tumours can produce higher-than-normal levels of hormones, resulting in a variety of symptoms. It might be benign or cancerous.[3]

Table 1: Ten types of cancers and their sample sizes.

Cancer Type	Cancer Abbreviation	Cancer Name	Sample size	Number of training samples	Number of test samples
1	BLCA	Bladder Urothelial Carcinoma	127	102	25
2	BRCA	Breast invasive carcinoma	747	598	149
3	COAD/READ	Colon adenocarcinoma and Rectum adenocarcinoma	464	371	93
4	GBM	Glioblastoma multiforme	215	172	43
5	HNSC	Head and Neck squamous cell carcinoma	212	170	42
6	KIRC	Kidney renal clear cell carcinoma	454	363	91
7	LUAD	Lung adenocarcinoma	237	190	47
8	LUSC	Lung squamous cell carcinoma	195	156	39
9	OV	Ovarian serous cystadenocarcinoma	412	330	82
10	UCEC	Uterine Corpus Endometrioid Carcinoma	404	323	81
Total			3467	2775	692

(adapted from 28)

Growth of Cancer Cells



(A)

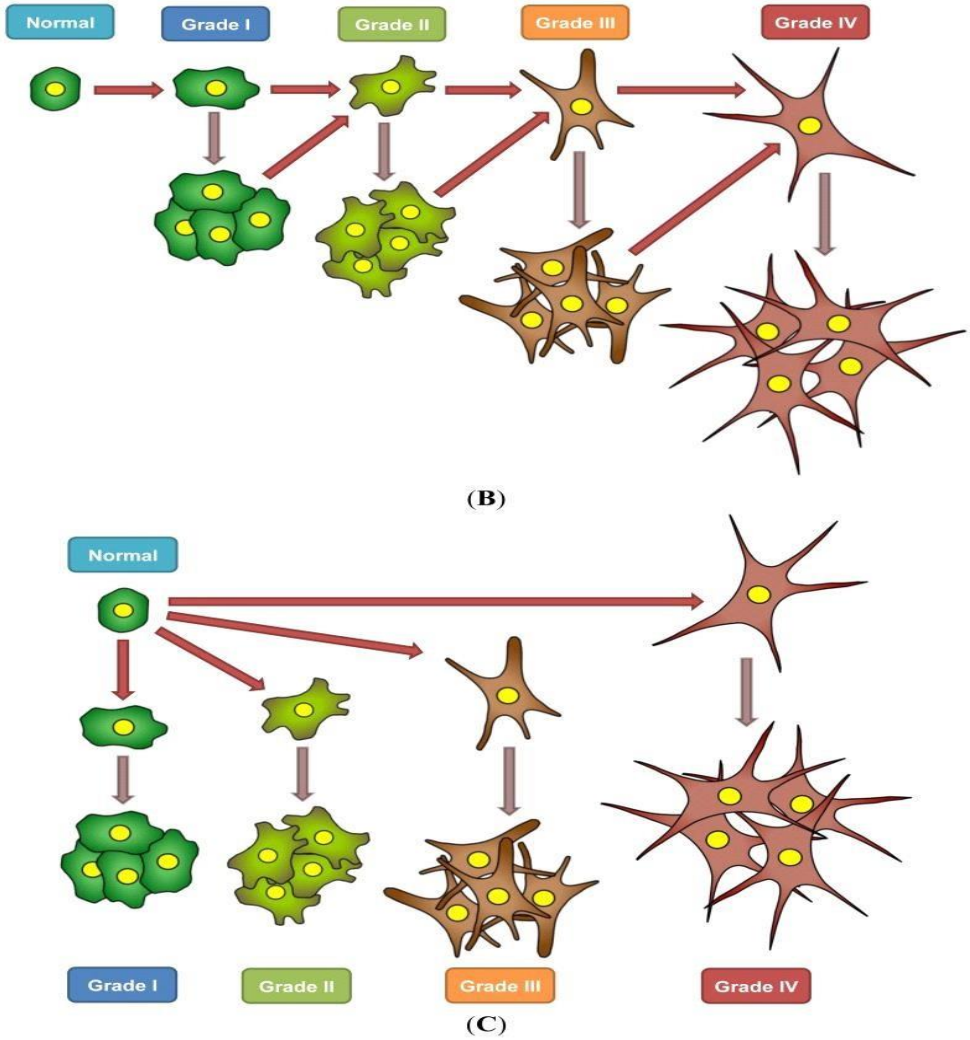


Figure 1

(Adapted from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3821660/figure/f1-ijms-14-21087/)

- Cancer progenitor cells and progression of metastatic cancer. a: hexagons with yellow dots represent normal cells; b: faded green, distorted hexagons with yellow dots represent cancer progenitor cells; c: progenitor cells are increasing in number; d: star-like brown cells represent the metastatic form of cancer cells, a mixed population of progenitor and adult cells; e: overgrowth of metastatic cells; f: both metastatic and adult progenitor cells leave site. Progression: Cancer progenitor cells develop from normal cells (a to b); After growth (b to c), they undergo EMT (c to d); Differentiation signals decrease and growth signals increase, producing a combination of progenitor and adult metastatic cancer cells (d to e); After the outgrowth of metastatic cells, translocation to a distant location occurs (e to f); (B) Model for the development of grade-specific cancers. Cancer progenitor cells pause at each grade of differentiation and proliferate from that grade while maintaining the ability to differentiate further; and (C) Model of the development of grade-specific cancers. Some cells progress further through differentiation than others, stop differentiation, and then proliferate, giving rise to clonal populations of cancer cells at distinct grades[28]

Cancer Diagnosis

Cancer may be detected at some stage in a bodily examination: The presence of a lump or tumour, a alternate in pores and skin colour, or the growth of an organ are all symptoms and symptoms that something is wrong. Urine and blood tests, together with a complete blood picture, are examples of laboratory testing. Computerized Tomography (CT) scan, Bone scan, Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET) scan, ultrasound and X-ray, and Biopsy are a number of the imaging strategies available. [29]

Lab tests employ urine, blood, and other bodily fluids to determine the compounds that cause cancer in our bodies, such as low and high quantities of substances that can cause cancer. Malignancy cells and other cells develop tumour markers in response to cancer.[30] Because lab tests alone do not provide a reliable diagnosis of cancer, a clinician must supplement these results with other cancer testing.[31]

Imaging Tests: In this test, an photo of the vicinity withinside the frame is made, which aids in figuring out whether or not or now no longer a tumour is present. It consists of exams such as:[32]

CT Scanning: X-ray device linked to the laptop are utilised to provide three-dimensional pics of your organs from numerous angles during this examination.[33] Before scanning, you could want to use a dye or different evaluation fabric to make it less complicated to perceive positive frame components withinside the photo. The picturegraph turned into taken through journeying across the frame withinside the donut-fashioned scanning device.[34]

MRI: This scan may also be used to build a detailed view of the human organs by capturing photos in slices.[35] The slices are taken using radio waves and a strong magnet. This scan clearly distinguishes between sick and healthy tissues. Before an MRI scan, you must take a dye for the subsequent scan, just as you do before a CT scan.[36]

Nuclear Scan Because radioactive material is utilised to capture pictures of bodily organs, the nuclear scan is also known as a radionuclide scan.[37] A little quantity of radioactive material in the injectable form known as a tracer is required for a CT and MRI scan. By passing via the blood, it gathers in the bones. It contains two scans: a pet scan and a bone scan.[38]

Bone Scan: It's used to screen for bone injury or abnormalities.[39] Before the scan, the patient must inject a tiny amount of radioactive material into his or her vein. The radioactive material passes through the blood and settles in an abnormal location of the bones.[40] The substance where it gathers was imaged using a special scanner, and these locations are known as hot spots.[41]

Pet Scan Because cancer cells require more glucose than healthy cells, a radioactive glucose substance is employed in this scan to provide a 3-D image of bodily organs.[42]

Ultrasound: Ultrasound uses high-energy sound waves to echo tissues because individuals cannot hear these vibrations.[43] The computer utilises these echoes to construct a sonogram, which is an image of bodily organs created by a device called a transducer moving slowly over the skin.[44]

X-rays In an X-ray scan, low-dose x-rays are used to make an image of bodily organs, and you must remain motionless and hold your breath for 1-2 seconds while the beam is directed on the body part. [3]

Fluorescence lifetime imaging(FLI):-Women with breast cancer can benefit from fluorescence lifetime imaging (FLI).(45) A scan will reveal whether you have proteins that aid in the growth of cancer cells. If you do, they may be able to recommend a therapy that can slow or stop the developmentBiopsy.[46]

Biopsies are used in oncology to diagnose cancer, determine tumour histology, and confirm the existence of metastases for staging. A biopsy sample can be collected in a number of ways:

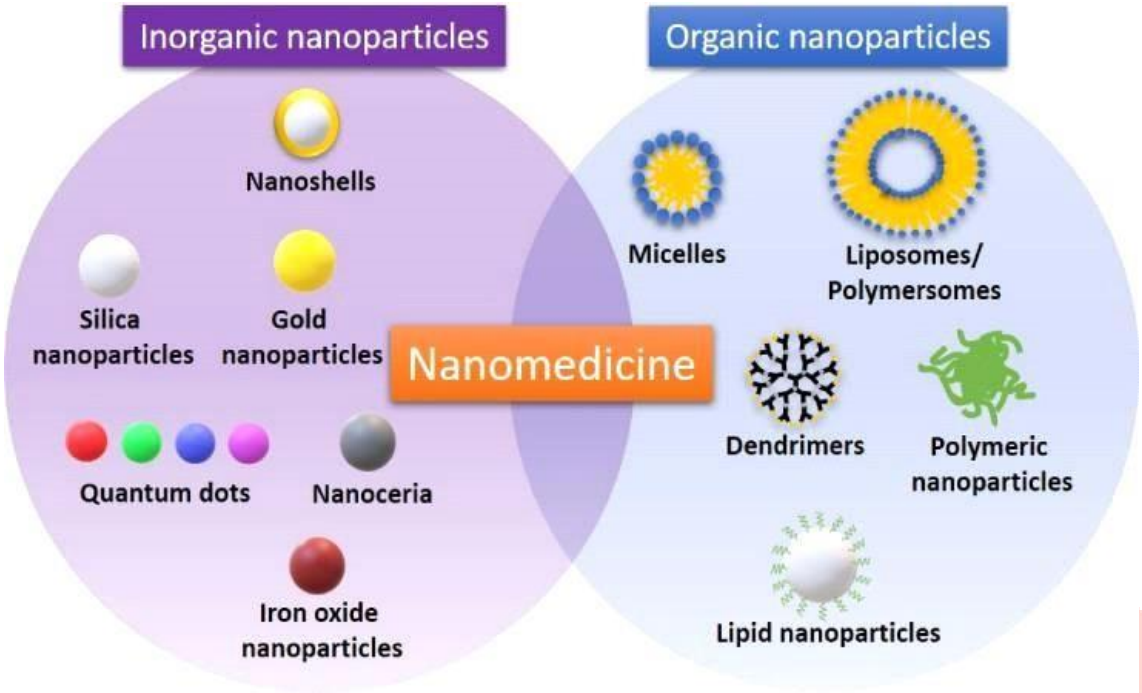
- Using the Needle
- Endoscopy is a procedure that allows you to see within your body.

- Surgical Procedures[47]

CANCER TREATMENT

NANOMEDICINE

Nanoparticles are small systems (1–1,000 nm in size) with peculiar physicochemical properties due to their size and high surface-to-volume ratio.[48]



[49] (Adapted from Zhang X, Gaikwad A, Mathew L, Coffer L, Dalrymple J. Assessment of Dong Quai Hepatic Metabolism and Potential Interactions when Combined with Chemotherapy. J Integr Oncol. 2013; 2(108):2)

Nanoparticles can be targeted in one of these ways passive or active.[50]

Gold nanoparticles have been studied as a therapeutic drug delivery method, in photodynamic therapy for cancer treatment, and in diagnostics to identify biomarkers for various disorders.[48]

EXTRACELLULAR VESICLES FOR CANCER TREATMENT

Exosomes (50-100 nm in diameter) and ectosomes are two forms of extracellular vesicles (also called microvesicles, 100-1000 nm in diameter) [51]

Exosomes, which are potent extracellular nanovesicles secreted by nearly all types of live cells, are thought to be the communication engines (messengers) that govern and modify physiological pathways within target cells[52]

NATURAL ANTIOXIDANTS IN CANCER THERAPY

Quercetin is a flavonoid with antioxidant, anti-inflammatory, anti-allergic, antiviral, and anti-cancer properties.[53] Breast, lung, nasopharyngeal, kidney, colorectal, prostate, pancreatic, and ovarian cancers are

among the tumours that quercetin has been shown to suppress. Because quercetin is cytotoxic to cancer cells through a variety of methods while causing no damage to healthy cells, it has been proposed as a potential therapy for ovarian cancer.(54). Berberine is an isoquinoline alkaloid discovered in Berberis species. It reduces drug resistance in cancer therapy and improves tumour suppression in part by triggering autophagy and cell cycle arrest..(55)

GENE THERAPY FOR CANCER TREATMENT

One possible use is treating genetic illness by introducing a healthy gene into cells of people who have a "malfunctioning" gene. The additional genetic information might allow these cells to operate properly, thereby reducing or eliminating the disease's consequences. (56) Immunotherapy stimulates the immune system to kill cancer cells using genetically engineered cells and viral particles.(57) Oncolytic virotherapy, which employs viral particles that proliferate within cancer cells to kill them, is a new therapeutic option that has a lot of potential, especially for metastatic malignancies. Gene transfer is a novel therapy method that involves introducing new genes into a malignant cell or surrounding tissue in order to trigger cell death or delay cancer progression. (58)

STEM CELL THERAPY

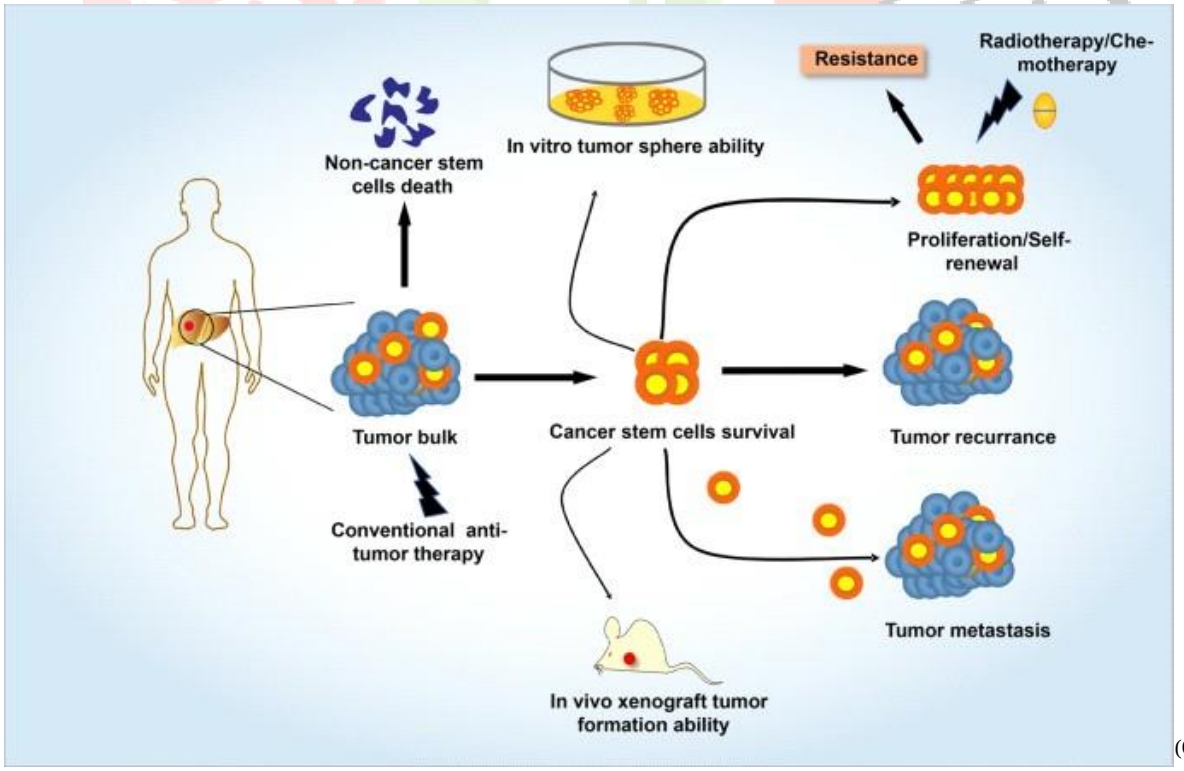
Proliferation, migration, and differentiation capacities of stem cells from various sources vary, determining their anti-tumor therapeutic applications. (59) In multilineage differentiation, stem cells have the ability to self-renew and have a high replicative potential (60)

Type of Stem Cells for Cancer Treatment

Pluripotent Stem Cells (PSCs)

Adult Stem Cells (ASCs)

CancerStemCells(CSCs)



(60)

(Adapted from ChaoyueSu,Jianye Zhang, Yosef Yarden The key roles of cancer stem cell-derived extracellular vesicles.,Signal Transduction and Targeted Therapy volume 6, Article number: 109 (2021) 08 March 2021)

Drug-Free Treatments

Yoga, massage, meditation, and hypnosis are examples of non-drug therapies that might help you live a better life while undergoing cancer treatment. Some can help you feel better by relieving tension.[61]

Night sweats, nausea, fatigue, hot flashes, depression, and pain can all be relieved by acupuncture, an ancient Chinese treatment that uses small needles inserted beneath the skin.[62]

Lifestyle Changes

Working exercise can lower your chances of developing 13 different malignancies. It will assist if you walk for 30 minutes during your lunch break every day.[63]

Chemotherapy Drugs and treatment

Chemotherapy is the use of chemicals or medications to kill cancer cells, with systemic effects. [64] Based on their modes of action, anticancer medications can be divided into numerous categories, which include the following: a) alkylating agents, which damage DNA; b) anti-metabolites, which replace the normal building blocks of RNA and DNA; c) antibiotics, which interfere with DNA replication enzymes; d) topoisomerase inhibitors, which inhibit either topoisomerase I or II, which are enzymes involved in unwinding DNA during replication and transcription; e) mitotic inhibitors, which inhibit mitosis and cell division; and f) corticosteroids,(Table 2).

Table 2: Current regimen of treatment for lung cancer.

Drug name	Generic name	Use
Xeloda	Capecitabine	anti-metabolites
Avastin	Bevacizumab	VEGF/VEGFR inhibitors
Tarceva	Erlotinib	EGFR inhibitors
Cytoxan	Cyclophosphamide	alkylating agents
Taxol	Paclitaxel	mitotic inhibitorsa

Taxotere	Docetaxel	mitotic inhibitors
Gemzar	Gemcitabine	antimetabolites
Erbitux	Cetuximab	EGFR inhibitors
Alimta	Pemetrexed	antimetabolites
Navelbine	Vinorelbine	mitotic inhibitors
Platinol	Cisplatin	alkylating agents
Trexall	Methotrexate	antimetabolites, antipsoriatics, antirheumatics
Ethyol	Amifostine	antineoplastic detoxifying agents
Iressa	Gefitinib	EGFR inhibitor
Neosar	Cyclophosphamide	alkylating agents
Platinol-AQ	Cisplatin	alkylating agents
Photofrin	Porfimer	miscellaneous antineoplastics
Onxol	Paclitaxel	mitotic inhibitors

PREVENTION OF CANCER

For more than a quarter-century, prevention has been the primary cancer control goal, yet the promise of prevention has mostly gone unmet [65]

The interaction of Genes and Environment

The potential for understanding cancer aetiology through genetic association and gene–environment research is enormous.[66] Good research design and methodological rigour, on the other hand, are critical. Studies must be big, reproducible, and well-powered, with proper case and control selection procedures, in order to analyse these relationships and interactions effectively and accurately. [67] The objective of identifying high-risk people for preventive measures has some similarities to genomics research and its promises of tailored prevention—the goal being to identify individuals with susceptibility-predictive genetic markers. [68] Although over 100 genes have been identified as causing Mendelian hereditary cancer syndromes, they only account for a small portion of the family clustering of prevalent malignancies. In the overall population, the higher family relative risk of cancer must mostly be due to low-risk genes.[69]

Attributable Risk Estimates

More than three decades ago, the Office of Technology Assessment of the United States Congress commissioned two eminent British epidemiologists, Sir Richard Doll and Sir Richard Peto, to review the evidence on ways to avoid cancer and quantify the reductions in death rates that could be achieved by preventive measures taken over the next one to two decades. [70] Cancer has multiple causes that interact with each other at different points in life; the sum of attributable fractions of causes for cancer is not 100%; rather, the sum is infinite[71] Cancers are multifactorial with multiple etiologic pathways; prevention may be possible by focusing on several different factors at multiple times throughout one's lifetime.[72]

Clinical Dimensions of Cancer Prevention

Because cancer prevention is linked to other components of the medical care system through this cancer control continuum, preventive health services such as breast or colon cancer screening, tobacco cessation counselling, and vaccination against infectious diseases have gained prominence since the mid-1970s (e.g., Tamoxifen, Raloxifene).[73] The health-care system, on the other hand, is more likely to affect cancer incidence than morbidity and survival [74] Furthermore, considering disease prevention as part of a continuum with illness diagnosis and treatment presents a paradox: if effective, cancer prevention would stop the later phases of the disease.[75]

Definition of Modifiable Risk Factor

Many individual risk variables (e.g., sex, age, genetic inheritance, and occasionally education and money) are seen as fixed and not adjustable.[76] Typically, modifiable or preventable cancer risk factors are divided into two categories: lifestyle and environment. Individual behaviours such as tobacco smoking, poor diet, and physical inactivity are often described as lifestyles[77]. At the societal level, factors such as environmental contamination, unsafe conditions for physical activity, and food deserts, where people have limited access to fruits and vegetables, are all factors to consider (a factor that disproportionately affects low socioeconomic [SES] populations).[78] Tobacco use is an example of a risk factor that is both behavioural and societal, necessitating separate prevention strategies. Community-based interventions (e.g., raising

tobacco prices, utilising mass media to counter tobacco industry promotion in conjunction with other interventions, restricting minors' access to tobacco products) are successful techniques for lowering the proportion of adolescents who start smoking [79]

Social Determinants of Cancer

Because health is significantly connected with educational level and SES, several important organisations have called for a focus on social determinants of health[80]. The "upstream" social determinants of illness and health include the neighbourhood circumstances, environmental exposures, social and occupational possibilities, and personal resources that establish the context in which health decisions and behaviours are made.[81] Damage to organ systems or genes is a "downstream" result of such socioeconomic determinants[74]. Breast and skin cancer are significant exceptions, although when those cancer forms are identified in low-SES individuals, they have dismal survival rates [82]

When to Take Action

Harm reduction (reducing exposure to known cancer causes), therapeutic treatments (vaccines, chemoprevention), and health promotion (promoting habits linked to lower cancer risk) have all been used in the fight against cancer [83] Although much more research on chemical exposures and other aspects of cancer prevention is needed before scientists, policymakers, and public health organisations can intervene on potentially harmful or protective factors, scientists, policymakers, and public health organisations must consider the thresholds of evidence that they deem necessary.[84] Many areas of preventative research have grappled with issues regarding the degree of proof required for action [85] Individual behaviours and activities may influence personal exposures, environmental degradation, and society changes, which could improve prevention approaches.[86] Similarly, a deeper knowledge of how social, economic, and environmental factors impact, encourage, or constrain "lifestyle" and other behaviours at various periods of life is required. The National Prevention Strategy, which was just issued, intends to raise the percentage of Americans who are healthy at every stage of life by integrating actions across many settings, and it presents a particularly applicable approach for cancer prevention [87]

REFERENCES

1) SangaMitra, Sayak Ganguli,JayprokasChakrabarti,Cancer and Noncoding RNAs, Translational Epigenetic 2018, Pages 1-23

2) Seyed Hossein,Hassanpour,Mohammadamin,Dehghani, Review of cancer from perspective of molecular.,Volume 4, Issue 4, December 2017, Pages 127-129

3) Anupam Saini, Manish Kuma , Shailendra Bhatt, Vipin Saini and Anuj Malik CANCER causes and treatments IJPSR (2020), Volume 11, Issue 7

4) Bruce N. Ames, Lois Swirsky Goldt, and Walter C. Willettt, The causes and prevention of cancer, Proc. Natl. Acad. Sci. USA Vol. 92, pp. 5258-5265, June 1995

5) Timothy J Key, Kathryn E Bradbury, Aurora Perez-Cornago,Rashmi Sinha, Konstantinos K Tsilidis, Shoichiro Tsugane, Diet, nutrition, and cancer risk: what do we know and what is the way forward?,Pubmed central 2020 Mar 5

6) M Waheed Roomi, Aleksandra Niedzwiecki and Matthias Rath , Scientific Evaluation of Dietary Factors in Cancer, J Nutri Med Diet Care 2018

7) Charles Patrick Davis, MD, PhD, Cancer, Medicine Net(2022)

8) Susan Preston-Martin, Malcolm C. Pike, Ronald K. Ross, Peter A. Jones, and Brian E. Henderson, Increased Cell Division as a Cause of Human Cancer, cancer research 50. 7415-7421. December 1. I990

9) Cesar G. Victora MD, PhD, Jean-Pierre Habicht MD,PhD and Jennifer Bryce., Evidence- Based Public Health: Moving Beyond Randomized Trials., American Journal of Public Health October 10, 2011

10) Jeffrey Blumberg, Robert P Heaney, Michael Huncharek, Theresa Scholl, Meir Stampfer, Reinhold Vieth, Connie M Weaver, and Steven H Zeisel., Evidence-based criteria in the nutritional context., Nutrition Reviews, Volume 68, Issue 8, 1 August 2010, Pages 478–484,

11) Anupam Saini, Manish Kuma, Shailendra Bhatt, Vipin Saini and Anuj Malik. Cancer causes and treatments IJPSR (2020), Volume 11, Issue 7

12) Thomas R. Frieden, Julie E. Myers, Marian S. Krauskopf, Thomas A. Farley., A Public Health Approach to Winning the War Against Cancer., The Oncologist 17 December 2008.

13) Atlanta, GA., Cancer Facts & Figures 2012. American Cancer Society (ACS)., Te Journal of Consumer Health on the Internet 08 Aug 2012 66 p

14) Blackadar CB. Historical review of the causes of cancer. World journal of clinical oncology. 2016 Feb 10;7(1):54.

15) Ames BN, Gold LS, Willett WC. The causes and prevention of cancer. Proceedings of the National Academy of Sciences. 1995 Jun 6;92(12):5258-65.

16) Hemminki K, Försti A, Hemminki A, Ljungberg B, Hemminki O. Incidence trends in lung and bladder cancers in the Nordic Countries before and after the smoking epidemic. European Journal of Cancer Prevention. 2021 Jul 8;31(3):228-34.

17) Dreyer L, Winther JF, Pukkala E, Andersen A. Avoidable cancers in the Nordic countries. Tobacco smoking. APMIS. Supplementum. 1997 Jan 1;76:9-47.

18) Debela DT, Muzazu SG, Heraro KD, Ndalama MT, Mesele BW, Haile DC, Kitui SK, Manyazewal T. New approaches and procedures for cancer treatment: Current perspectives. SAGE Open Medicine. 2021 Aug;9:20503121211034366.

19) Kotecki N, Escande F, Surmei-Pintilie E, Abramovici O, Bonneterre J. Contribution of Next-generation Sequencing in a Case of Metastatic Breast Carcinoma with Pulmonary Lesions. J Lung Cancer Diagn Treat. 2016;1(103):2.

20) Malshe AG. Hydrogen ion/Proton Dynamics: A Possible Therapeutic Approach in Malignancy Treatment. J Clin Exp Oncol. 2016;5(1).

21) Romeira D, Rodrigues C, Cardoso D, Pinto M, Miranda M. Tumor Infiltrating Lymphocytes and Axillary Lymph Node Positivity: A Systematic Review. J Clin Exp Oncol. 2016;5(2).

22) Parvathi MV. Micro RNA-142-5p Profile as a Predictor of Tumor Markers Regulation in Different Histological Grades of Human Breast Carcinoma. J Clin Exp Oncol. 2016;5(2).

23) Xu Y, Herrmann J, Pellikka PA, Ansell SM, Cha SS, Villarraga HR. Early changes in 2D-speckle-tracking echocardiography may predict a decrease in left ventricular ejection fraction in lymphoma patients undergoing anthracycline chemotherapy: a pilot study. J Clin Exp Oncol. 2015;1:1.

24) Karimi A, Derakhshan S, Baghaii F. Challenges in Diagnose and Management of Ameloblastic Carcinoma: A Report of Three Cases. J Clin Exp Oncol 4. 2015;2:2.

25) Kuperman VY, Kouskoulas TN, Battle JA, Factor BA, Hechtman CD. Evaluation of automatic and manual contouring of cranial structures. J Clin Exp Oncol 4. 2015;2:2.

26) Der EM, Kwame-Aryee RA, Tettey Y, Seffah JD, Wiredu EK. Malignant tumours of the female genital tract: A 10-year histopathological review at the Korle-Bu Teaching Hospital (2002-2011). J Clin Exp Oncol 4. 2015;4:2.

27) Tilakaratne WM, Siriwardena BS, Jayathilake DS, Pitakotuwage TN, Illeperuma RP. Demographic and histopathological differences of oral squamous cell carcinoma; analysis of 4394 cases from Sri Lanka. J Clin Exp Oncol 4. 2015;4:2.

28) Akbayir S, Unal ND, Balcı S, Gorur A, Yaroglu HY. Evaluation of Plasma microRNA Expression Levels in Early Diagnosis of Colorectal Cancer. J Clin Exp Oncol 3. 2014;1:2.

29) Kassim YL, Al Tawil E, Le Cerf D, Couteau J, Simon T, Buquet C, Vannier JP, Demange E. Biomimetic three dimensional cell culturing: colorectal cancer micro-tissue engineering. Journal of Clinical & Experimental Oncology. 2014;3(02).

30) Foroughi F, Hosseini H. Small intestinal obstruction due to metastasis from marjolin's ulcer: Report of a case and review of the literature. J Clin Exp Oncol. 2014;3(3).

31) Hayashi T, Horiuchi A, Sano K, Hiraoka N, Ichimura T, Sudo T, Ishiko O, Yaegashi N, Aburatani H, Konishi I. Potential diagnostic biomarkers: differential expression of LMP2/β1i and cyclin B1 in human uterine leiomyosarcoma. Tumori Journal. 2014 Jul;100(4):99-106.

32) Yonemura Y, Canbay E, Endou Y, Ishibashi H, Mizumoto A. Mechanisms of the formation of peritoneal surface malignancy on omental milky spots from low grade appendiceal mucinous carcinoma. J Clin Exp Oncol 3. 2014;4:2.

33) Maite LD, Ricardo GC, Ilde ZA. Atipic axillary mass: Follicular dendritic cell sarcoma within castleman's disease: a case report and review of literature. J Clin Exp Oncol. 2014;3(4).

34) Minjoung Monica Koo, , PhD, MPH, BSc;Karla Unger-Saldana, MD, MSc, DSc;Amos D. Mwaka, MBChB, MMED, PhD;Marilys Corbex, PhD; Ophira Ginsburg, Msc, MD; Fiona M. Walter, MA, MBBChir, DCH, DRCOG, MSc, MD[6]; ... Conceptual Framework to Guide Early Diagnosis Programs for Symptomatic Cancer as Part of Global Cancer Control , JCO Global Oncol 7:35-45. 2021 by American Society of Clinical Oncology

35) Coyne CP, Jones T, Bear R. Gemcitabine-(C4-amide)-[anti-HER2/neu] anti-neoplastic cytotoxicity in dual combination with mebendazole against chemotherapeutic-resistant mammary adenocarcinoma. Journal of clinical & experimental oncology. 2013;2(2).

36) Caudron A, Chassine AF, Gloan SL, Arnault JP, Chaby G. Elastography as a new screening tool for metastatic lymph nodes in melanoma patients. J Clin Exp Oncol 2. 2013;3:2.

37) Niu J, Gelbspan D, Chong L, Birdsall S, Weitz D, Weiss GJ. Lung Adenocarcinoma Presenting with WDHA Syndrome and Marie-Bamberger Syndrome: A Case Report. J Clin Exp Oncol. 2013;2(3).

38) Edward B. silberstein. M.D., Cancer Diagnosis The Role of Tumor-Imaging Radiopharmaceuticals, February 1976 The Amerkan Journal of MedicIns Volume 60

39) Kinoshita S, Fukushima N, Miyake R. Clinicopathological assessment of patients with locally advanced breast cancer with 10 or more lymph node metastases. Breast Can Curr Res. 2016;1(2):107.

40) Meredith I, Goh J, Gerred S. Mammographic Surveillance after Breast Reconstruction-Is Imaging Necessary. Breast Can Curr Res. 2016;1(106):2.

41) Su Chul Jang, Oh Youn Kim, Chang Min Yoon, Dong-Sic Choi, Tae-Young Roh, Jaesung Park, Jonas Nilsson, Jan Lotvall, Yoon-Keun Kim, Yong Song Gho.,Bioinspired exosome mimetic nanovesicles for targeted delivery of chemotherapeutics to malignant tumors., ACS nano. 2013 sep 24;7(9): 7698-7710

42) Fiona M. Walter , Matthew J. Thompson , Ian Wellwood , Gary A. Abel , William Hamilton , Margaret Johnson1 , Georgios Lyratzopoulos4 , Michael P. Messenger5 , Richard D. Neal6 , Greg Rubin , Hardeep Singh , Anne Spencer , Stephen Sutton , Peter Vedsted and Jon D. Emery, Evaluating diagnostic strategies for early detection of cancer: the CanTest framework, BMC Cancer14 June 2019

43) Chiara Martinelli, Carlotta Pucci Gianni Ciofani.,Nanostructured carriers as innovative tools for cancer diagnosis and therapy.,APL Bioeng. 2019 Mar 26;3(1):011502.

44) Carlotta Pucci,Chiara Martinelli , Gianni Ciofani.,Innovative approaches for cancer treatment: current perspectives and new challenges., Ecancermedicalscience. 2019.13:961.

45) Remon Bazak [1] , Mohamad Houri, Samar El Achy, Serag Kamel, Tamer Refaat.,Cancer active targeting by nanoparticles: a comprehensive review of literature., J Cancer Res Clin Oncol. 2015 May ;141(5):769-84.

46) Sibaji Sarkar,* Garrick Horn, Kimberly Moulton, Anuja Oza, Shannon Byler, Shannon Kokolus, and McKenna Longacre.,Cancer Development, Progression, and Therapy: An Epigenetic Overview.,Int J Mol Sci. 2013 Oct; 14(10).

47) Kotecki N, Escande F, Surmei-Pintilie E, Abramovici O, Bonneterre J. Contribution of Next-generation Sequencing in a Case of Metastatic Breast Carcinoma with Pulmonary Lesions. J Lung Cancer Diagn Treat. 2016;1(103):2.

48) Louis R, Louis E, Stinkens K, Mesotten L, De Jonge E. Metabolic Phenotyping of Blood Plasma by Proton Nuclear Magnetic Resonance to Discriminate between Colorectal Cancer. Breast Cancer and Lung Cancer. Metabolomics (Los Angel). 2016;6(187):2153-0769.

49) Zhang X, Gaikwad A, Mathew L, Coffer L, Dalrymple J. Assessment of Dong Quai Hepatic Metabolism and Potential Interactions when Combined with Chemotherapy. J Integr Oncol. 2013;2(108):2.

50) Coffer L, Mathew L, Zhang X, Owiti N, Myers A. Evaluation of active hexose correlated compound (AHCC) on phase II drug metabolism pathways and the implications for supplement-drug interactions. J Integr Oncol. 2015;4(3):142.

51) Dinh- Toi Chu, Tien Nguyen, Nguyen, Le Bao Tien, Dang –Khoa Tran, Jee-HeonJeong, Pham Gia Anh, Vo Van Thanh, Dang Tien Truong and Thien Chu Dinh., Recent Progress of Stem Cell Therapy in Cancer Treatment: Molecular Mechanisms and Potential Applications Cells. 2020 Mar;9(3):563

52) Chih-Yang HUANG, Da-Tong Ju, Chih-Fen Chang, P. Muralidhar Reddy and Bharath Kumar Velmurugan. A review on the effects of current chemotherapy drugs and natural agents in treating nonsmall cell lung cancer. 2017 Dec; 7(4): 23

53) Reza Mohammadinejad, Mohammad Amin Moosavi, Shima Tavakol, Deniz Özkan Vardar, Asieh Hosseini, Marveh Rahmati, Luciana Dini, Salik Hussain, Ali Mandegary, Daniel J Kilinsky.,Necrotic, apoptotic and autophagic cell fates triggered by nanoparticles., Autophagy Volume 15, 2019 jan 2;15(1)

54) Q Cai, J T Rubin, M T Lotze Genetically marking human cells--results of the first clinical gene transfer studies.Cancer Gene Ther. 1995 Jun.;2(2):125-36

55) Deanna Cross, James K Burmester. Gene therapy for cancer treatment: past, present and future ;4(3):218-27.

56) Albushra Y. Challenges and Questions in the Management of Metastatic Castration Resistant Prostate Cancer. Cancer Med Anticancer Drug. (2016);1:104.

57) Mathioudakis A and Hardavella G. From Lung Cancer Screening to Targeted Therapies: The Endless Race against Lung Cancer Morbidity and Mortality. J Lung Cancer Diagn Treat. (2016);1:e101.

58) Bisen PS. Experimental and Computational Approaches in Leveraging Natural Compounds for Network based Anti-cancer Medicine. Cancer Med Anticancer Drug. (2016);1:e103.

59) Lai Y and Lai J. Severe Liver Toxicity in a Lung Cancer Patient Treated with Erlotinib: A Case Report and Literature Review. J Cancer Sci Ther. (2016);8:268-273.

60) ChaoyueSu,Jianye Zhang, Yosef Yarden The key roles of cancer stem cell-derived extracellular vesicles.,Signal Transduction and Targeted Therapy volume 6, Article number: 109 (2021) 08 March 2021

61) Black HS. Epithelial-Mesenchymal Transition: The Cancer Connection. J Integr Oncol. (2015);4:e108.

62) Ahmed OM. Relationships between Oxidative Stress, Cancer Development and Therapeutic Interventions. Cancer Med Anticancer Drug. (2016);1:e104.

63) Pezzella F. Cancer and Blood Vessels: A Complex Relationship. J Lung Cancer Diagn Treat. (2016);1:104

64) Maciej P, Banaszewski J, Pastusiak T, Buczkowska A, Kuczko W, Wichniarek R, Górski F. Mandibular Reconstruction with Osteo-cutaneous Free Flaps in a Patient after Extensive Surgery Supported with 3D Printed Models. J Integr Oncol. 2016;5:177.

65) Mary C. White, Sc.D., Lucy A. Peipins, Ph.D.,Meg Watson, M.P.H., Katrina F Trivers, Ph.D., Dawn M Holman, M.P.H., and Juan L Rodriguez, M.P.H. Cancer Prevention for the Next Generation J Adolesc Health. 2013 May; 52(5 0): S1

66) Gilhodes J, Belot A, Bouvier AM, Remontet L, Delafosse P, Ligier K, et al. Incidence of major smoking-related cancers: trends among adults aged 20–44 in France from 1982 to 2012. Cancer Epidemiol. 2015;39:707–13.

67) Duncan Thomas., Gene--environment-wide association studies: emerging approaches
68) M H Gail, L A Brinton, D P Byar, D K Corle, S B Green, C Schairer, J J Mulvihill Projecting individualized probabilities of developing breast cancer for white females who are being examined annually J Natl Cancer Inst. 1989 Dec 20;81(24):1879-86.

69) Jean-Baptiste Cazier, Ian Tomlinson General lessons from large-scale studies to identify human cancer predisposition genes J Pathol. 2010 Jan;220(2):255-62.

70) Richard Doll, Richard Peto., The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today., Journal of the National Cancer Institute, Volume 66, Issue 6, June 1981, Pages 1192–1308

71) David L. Schringer, MD, MPH., Modern Epidemiology., Annals of Emergency Medicine.,volume 52, Issue 4, P480, october 01,2008

72) Tabouret E, Rousseau B, Barrié M, Bequet C, Thiebault L. Bevacizumab trough concentration in recurrent glioblastoma patients. J Integr Oncol. 2015;4(138):2.

73) Gupta AA, Kheur SM, Shetty L, Kheur M. Unconventional causes of conventional oral cancer. J Integr Oncol. 2015;4(152):2.

74) Robert A HiattMD,PhD, NancyBreen PhD., The Social Determinants of Cancer: A Challenge for Transdisciplinary Science American Journal of Preventive MedicineVolume 35, Issue 2, Supplement, August 2008, Pages S141-S150

75) Alvarez AM, Valerio JE, Coy S, Alan AS, Wolf A. Primary cns Lymphoma: Analysis of Treatment by Gamma-Knife Radiosurgery and Chemotherapy in a Prospective, Observational Study. J Integr Oncol. 2015;4(150):2.

76) Chang H, Xiao W, Zhang L, Qiu B, Chen Y. Neoadjuvant Chemotherapy of Three Cycles or More Improve Survival of Patients with N2-3 Nasopharyngeal Carcinoma. J Integr Oncol. 2015;4(149):2.

77) Probst-Hensch, Nicole; Künzli, Nino., Preventing Noncommunicable Diseases—Beyond Lifestyle., Epidemiology: March 2012 - Volume 23 - Issue 2 - p 181-183

78) Wang Z, El-Serag HB, Thrift AP. Increasing incidence of advanced non-cardia gastric cancers among younger Hispanics in the USA. Dig Dis Sci. 2020;66:1669–72.

79) S. Zaza, P. Briss, K. Harris (Eds.), The Guide to Community Preventive Services, Oxford University Press, New York, NY 2005 - 544

80) Paula A. Braveman,MD,MPH., Susan A. Egerter,PhD, Robin E.Mockenhaupt,PhD, MBA., Broadening the Focus.,American Journal of Preventive Medicine: volume 40, ISSUE 1, S4-S18, 01,2011

81) Rana Shafabakhsh and Zatollah Asemi., Quercetin: a natural compound for ovarian cancer treatment., Journal of Ovarian Research (2019)12(1)

82) Rahmani S, Gendy R. The Clinical and Histopathological Significance of Performing Surgical Cavity Random Biopsies in Breast Conserving Surgery. European Journal of Surgical Oncology. 2008 Oct 1;34(10):1171.

83) Khawaja S, Saiyed A, Thayabaran D, Udayasankar S, Dias J. A comparison between oncoplastic breast conserving surgery and standard wide local excision: a UK experience. J Blood Lymph. 2015;1(102):2.

84) Geleta B, Makonnen E, Abay SM. N-myc downstream regulated gene (NDRG): Role in cancer metastasis suppression and as drug target in cancer therapeutics. J. Cancer Sci. Ther. 2016;8(6).

85) Murugan NJ. Differentiation of Malignant Compared to Non-Malignant Cells by Their Bio-Photon Emissions May Only Require a Specific Filter around 500 nm. J Cancer Sci Ther 8: 170-171. doi: 10.4172/1948-5956.1000409 J Cancer Sci Ther ISSN: 1948-5956 JCST, an open access journal Volume 8 (6) 170-171 (2016)-174.

86) Gayatri Devi V, Badana A, Kumari S, Nagaseshu P, Malla R. Therapeutic potentials of CD151 shRNA in targeting metastasis of triple negative breast cancer cell line MDA-MB-231. J Cancer Sci Ther. 2016;8(4):104-2.

87) Peterson HE, Larson EW, Fairbanks RK, Lamoreaux WT, MacKay AR, Call JA, Demakas JJ, Cooke BS, Lee CM. Stereotactic Radiosurgery is a Safe and Effective Method of Prolonging Survival and Managing Symptoms in Patients with Brainstem Metastases.