Applying The Four Principles For The Treatment Of Patients With Cancer

Posted on October 10, 2018

View this essay online:
https://academic-master.com/applying-the-four-principles-for-the-treatment-of-patients-with-cancer/

Cancer cases are increasing day by day due to changes in lifestyle and our environment. Many people are dying today because of cancer. The human body is composed of cells that are in billions and are also microscopic. Cancer treatment is expensive, and not everybody can afford to pay for themselves. People are ignorant about regular medical check-ups, so in case a tumor is detected early, they can start treatment right away. Anybody can be affected and infected by cancer. Currently, machines and medicine to treat cancer are available due to the advancement of technology and tireless research of scientists to even find a cure for this deadly disease. For patients suffering from cancer, doctors handle them with a lot of care, as one mistake can end the life of a patient. Cancer awareness campaigns are carried out all over the world, offering people free cancer test screening, especially for women. This paper brings out ethical principles the doctors and medical fraternity apply in the treatment of a cancer patient to ensure that the mission of treatment is successful (8–9, 15, 28, 45–46).

Autonomy Disclosure and Informed Choice

Autonomy refers to the right of a patient to decide on their medical treatment or a decision to decline any treatment. Sometimes, the parents or the family of a patient suffering from a brain tumor demand the doctors not to tell him the truth about the results. A patient is entitled to the truth about his medical condition. Medical Centre oncologists are required to be truthful and honest at all times to the patients, and explain the swallow details of the state and treatment available. At times, telling the patient the truth may cause his condition to become worse and die in other cases. A young woman who has cervical cancer, on receiving the news of the illness, might try to commit suicide. A person who has cervical cancer at first sees no future and shame in society as she might not bear children. Withholding test results from a patient makes it difficult to prepare for treatment even when it is urgently needed, but, on the other hand, it spares her life. The medical care profession should offer the patient moral and spiritual guidance to ensure the patient accepts the result and gets on with life. Countries like India have palliative care programs specifically for cancer patients and help make the pain go away, thus improving their experience (50). Telling a patient that he has cancer gives him the disease to seek treatment early, and the cancer might be cured. Cancer in a person can be detected in its final stage, and disclosing the truth will prolong the life of a patient (39).

Beneficence and Nonmaleficence

Beneficence and non-maleficence are closely related to each other. Beneficence requires health care professionals to treat the patient under their care in a way that provides maximum benefit to him, while on the other hand, non-maleficence gives assurance that the responsibility of the medical care facility is to ensure the patient is comfortable. Florence Nightingale believed that no harm should come to a patient meaning the professionals in healthcare should protect their patients. Utilitarianism, ethical theory, emphasizes steps to take to grant a minimum number of people the highest good. Oncologists in healthcare must provide the patient with the best treatment available (35). At times, beneficence and non-maleficence may override each other. Doctors sometimes are influenced by the patient's parents not telling him about test results to protect the psychological well-being of the patient and thus favorable to the patient, as Edwards suggests (43). The act of withholding information overweighs respect for autonomy regarding the obligations of non-maleficence. Withholding information may make the patient doubt anything that she says. In case the patient accidentally gets the results of his test, he might attempt to harm himself or commit suicide. Withholding information at times may cause psychological or mental trauma, which is more dangerous than the disease he is suffering. The principle of beneficence highlights the truth, but the non-maleficence probability is high.

Justice and Equal Access to Care

Justice refers to fairness or equality. The equitable distribution of resources is seen as justice in the healthcare industry. Justice is divided into description justice and rights justice, as mentioned by Conn et al. Rights justice solves matters concerning people's fairness instead of law. Society has a firm belief that in medical care, individuals, especially cancer patients, are entitled to the best treatment and participation by giving an opinion regarding the treatment given (43). In citing the above case, an oncologist withholds information; he violates the right to receive full details about his disease prognosis, but all data is transferred to the family members without the patient's knowledge or his consent. The doctor is experiencing a medical ethics dilemma as to whether, to be honest and truthful to the patient or follow the wishes of his parents. The above scenario shows patient's rights are disrespected or denied in the eyes of the law that guides toward withholding the patient's test results to prevent him from finding out the truth. A patient has the right to get the full medication he needs from medical doctors. If the patient demands pain-relieving means, he should be given as the law demands. The patients should get good beds and other facilities they require in the hospital's inpatient cancer ward.

Treatment Of Cancer

The type of therapy that doctors administer to specific cancer depends on its level and the place it

has affected. Some people prefer one treatment to another combination of treatments, for example, surgery with chemotherapy and radiotherapy (4). The following are types of cancer treatment: surgery involves the removal of cancerous tissue from the body by a surgeon. Radiation therapy consists of treating cancer with a high dosage of radiation to kill cancer cells and reduce the size of tumors. Chemotherapy consists of treating disease with drugs to kill cancerous cells in the body (29, 27). Immunotherapy is the treatment to assist the body's immune system in fighting cancer on its own. Targeted therapy aims at changes that cause the cancer cell to grow, divide and multiply. Hormone therapy involves the use of hormones to slow down or stop the growth of breast or prostate cancer (41, 42). Stem cell transplant involves restoring blood-forming stem cells in a patient with a disease whose stem cells were destroyed by a high dosage of radiotherapy or chemotherapy (49). Precision medicine requires doctor treatment selection based on the genetic understanding of the patient's cancer disease (37, 46). Most of these treatment procedures are too painful for a person to handle. Medical doctors provide special provisions of spiritual, psychological, and emotional support to give them strength for the next medication session. Cancer needs painkillers to relieve pain when it becomes unbearable. Patients need wheelchairs as sometimes they are weak and cannot manage to stand. During treatment, the oncologist's fairness to all is required (10, 14, 16–18, 29–30, 44).

Causes Of Cancer

Cancer has numerous reasons which make it a hard disease to understand. Genetics and cancer have a relationship in that some people's cancer genes run in the family line (37). On the other hand, the substances that cause the development of disease are referred as carcinogens. Tobacco smoke molecules have chemical substances. Cumulative gene damage causes cancer due to chemical exposure or harmful content. Genetic factors, environmental agents or viral factors may cause cancer. Cancer is caused by many factors. Risk factors for disease are the following: internal or biological factors, for example, age, gender, inherited genetic factor defects, and also skin type (31). Exposure to environmental elements, for example, radon, UV radiation, and particulate matter, is fine; risk factors of occupation comprise carcinogens like chemicals, radioactive materials, and asbestos. Factors related to life, e.g., tobacco, alcohol, harmful ultra-violet rays of the sun, and elements of foods like polyaromatic hydrocarbons and nitrate that originate from the barbecued diet (48) (12, 19, 26, 32, 38)

Factors associated with work and the environment people reside in can cause cancer. The following factors cause cancer: asbestos fibers, tar, and pitch, polynuclear hydrocarbons like benzopyrene, some metal compounds, and plastic chemicals like vinyl chloride. Bacteria and viruses at the time may result in cancer like Helicobacter pylori (H. pylori that causes gastritis) (24); BVB, and HCV (hepatitis viruses that cause hepatitis). HPV (human papillomavirus, papillomavirus which generates changes, e.g., cervical cancer); EBV (Epstein-Barr virus, herpes virus which causes throat lymphoid inflammation (35, 44). Ionizing radiation, for example, X-ray radiation, soil radon, and non-ionizing radiation (the ultraviolet rays from the sun). Certain hormones, antineoplastic agents, and medicines causing immune deficiency put a person at high risk of getting cancer (22–23).

Symptoms And Ethics

At times, cancer gives no symptoms or signs. If the disease symptoms are detected or felt, one should see a doctor. Below are some of the common symptoms that occur: a cough or blood-tinged saliva persistence, which shows bronchitis or sinusitis infection, and they could be head, neck or lung cancer. When a cough with mucus inclusive of blood, one should see a doctor. Bowel habit changes may be related to diet and fluid consumption, constant diarrhea, pencil-thin stool, and need and feel bowel movement even after it is empty (20). Seat with blood-rectal bleeding is caused by hemorrhoids as they are familiar and exist with cancer. Low blood count (unexplained anemia)-this condition is whereby a person has fewer red blood cells than usual or as expected. Anemia is caused by a lack of oxygen and iron deficiency (25). Breast lump or discharge: chunks, at times, are non-cancerous tumors like cysts and fibroadenomas. If nipple discharge is blood from or originates from one nipple only may be an indication of cancer. Lumps in testicles that are painless and uncomfortable indicate the presence of disease, infections, and swollen veins at times cause enlargement of testes but any lamps should be checked. Frequent urination with a small amount of urine or slow flow of urine creates a change in bladder function, and prostate cancer in men makes the prostate gland enlarge (1). Pelvic tumors or bladder cancer cause bladder irritation and cause the urge to urinate frequently. Presence of blood in urine or hematuria caused by kidney stones or urinary tract infection. Hoarseness, which is not a result of respiratory disease and lasts more than three weeks, might be a result of allergy or vocal cord polyps, which indicate throat cancer. Presence of persistent lamps and a swollen gland that lasts for many weeks. Warts or moles change to irregular shapes, different colors or bleeding. Difficulty in both swallowing and indigestion with persistent heartburn can lead to esophagus cancer (47). Discharge or bleeding in the vagina indicates uterus cancer; bleeding occurs in between periods or during sexual intercourse and lasts for an extended period. Fever, sweating at night, and weight loss suggest different cancer types. Genital area or persistent anal itchiness, and even with using over-counter medicine, it does not go away. Sores that are non-healing in the mouth, tongue, tonsils, and gums with red or white patches, especially in the mouth. Back pain, pelvic pain, indigestion, and bloating may be a result of ovarian cancer, is difficult to treat and is mostly diagnosed in the final stages (33). When these symptoms appear, the patient has the right to know which type of cancer he or she has. Some of these symptoms make a person have low esteem and an inability to mingle with other people. The oncologist provides good medical scans and x-rays to know the stage of cancer (5, 36).

Side Effects Of Cancer And Ethics Application

Some adverse effects are long-lasting others last for a short period. The following are problems associated with treatment: removing the spleen through surgery gives a patient to higher chance of catching an infection. People who survive bone or soft-tissue cancers may experience the physical and emotional effects of losing part or the whole of their limb (2). Surgery removal of lymph nodes or radiotherapy may cause lymphedema which is swelling and causes pain due to fluid building up (3).

Lymph nodes assist in fighting away infection. Surgeries may cause infertility in both men and women who get operations on the abdomen and pelvis. Both chemotherapy and radiotherapy may cause heart problems. People with vast chances of developing heart problems are those aged 65 years and above, a person who received chemotherapy high dosage, received Hodgkin Lymphoma at a young age and received trastuzumab (Herceptin), doxorubicin (Adriamycin, Doxil). Congestive heart failure (CHF) is the weakening of heart muscles, and they experience dizziness, swollen hands and feet, with shortness of breath. Coronary artery disease is caused by administering a high dose of radiotherapy in a patient's chest; they experience breath shortage and chest pains. In Arrhythmia or irregular heartbeat, patients experience chest pain, breath shortness, and lightheaded. Trastuzumab, doxorubicin, daunorubicin (cerubidine), epirubicin (Allen) and cyclophosphamide (near) drugs tend to cause more heart problems and a person taking them should stay under close watch by a doctor (6). Heart tests are electrocardiogram (ECG) and multi-gated acquisition scan (MUGA). Body tissues and organs are made of a group of combined cells; they vary in functions. For example, nerves and muscles perform different work, and even cells have different structures. Cancer grouping is sometimes according to the cells they affect first.

High blood pressure or hypertension is a condition where the blood pressure rises beyond normal suddenly and can cause organ damage. Bevacizumab (Avastin), sorafenib (Nexavar) and sunitinib (Sutent) drug that targets vascular endothelial growth factors usually cause hypertension. Before using the above medicines, a person with a blood pressure history should undergo a series of tests.lung problems are caused by lung damage through the administration of chemotherapy and radiotherapy to a patient's chest. Lung problems may cause difficulty in breathing, lung inflammation, lung lining thickening, and changes in proper lung functioning. Older adults and patients with a history of lung complications may suffer due to cancer treatment done on their chests. Endocrine (hormone) system problems involve damage to organs and glands that produce hormones, eggs, and sperm. Many cancer treatments may result from a woman reaching menopause at an early age before time. The removal of a woman's ovaries through surgery and performing chemotherapy, hormone therapy, and radiotherapy to the pelvic area can cause menopause. Bone, joint, and soft tissue problems (osteoporosis), which include thinning of bones or joint pain due to chemotherapy, steroids, medications, or hormonal therapy (34). Brain, spinal cord, and nerve problems due to chemotherapy and radiation therapy, which at times becomes a long-term side effect. Learning, memory, and attention difficulties due to chemotherapy and administration of the high dosage of radiation therapy to both children and adults. Dental, oral health, and vision treatment problems depend on the treatment given. For example, chemotherapy affects tooth enamel and increases the risks of long-term dental challenges. Digestion problems and sores in the alimentary canal due to chemotherapy drug effect (41) (42).

Challenges Affecting The Application Of Ethics

During Cancer Treatment

Despite all the requirements of medical doctors, difficulties are encountered in fulfillment. On the side of justice, a patient who has undergone chemotherapy, surgery, or radiation therapy feels pain, and it is the patient's right to get painkillers. It is fatal for a patient to keep on taking pain medication even when his dose is complete. The patient and the doctor get a misunderstanding which is terrible. Amenities in a medical ward sometimes may not be enough for all patients. Suffering from leukemia usually needs a bone marrow transplant, which sometimes is hard to find and be compatible with the patient. Where a patient with cancer is in the final stage, chances of survival for an extended period are minimal. Autonomy ethical principle requires disclosure and rightfulness of the truth to a patient. An oncology doctor is an emotional being and human, disclosing to a person related that he has few months left to live will be difficult. When a patient refuses a treatment procedure, the doctor can't force him as he has no right to do so. Even though cancer patient has the right to get full resources disposal, some treatments are costly, like a bone marrow transplant for a leukemia patient. They can't access organ transplant services without money, which costs them millions. The brain and spinal cord are referred to as the central nervous system (CNS). The brain is composed of numerous nerve cells, neurons, and particular connective tissues involved in glial cells which give support to nerve cells. At times, cancer can start in the brain or spinal cord. The brain and spinal cord are joined together by fibers that relay messages from the body to the brain (21). The brain is referred to as a central processing unit of the human body and controls our bodies by transmitting information electrically along the nerve fibers. Glial cells or glioma are where most types of brain cancer develop. A certain percentage of tumors starting in the brain or spinal cord are benign or non-cancerous, and they spread at a slow pace while others spread and reproduce. Performing surgery to remove a tumor in the brain and spinal cord is very risky, and the patient might die in the surgery room. Machines in the surgery room might have a problem, causing the patient to pass. In cases like a brain and spinal cord tumor, the medical specialist should explain in detail the procedure.

Cancer is a vast area, and people's behavior causes many malignant diseases by not minding what they eat, drink or associate around. Doctors take good care of these patients and utilize the full resources at their disposal to ensure a successful treatment procedure. A patient may choose the kind of treatment to undergo with the help of nurses and doctors. Ethical principles of an oncologist are displayed well in cancer treatment of honesty and truthfulness. If the doctors and nurses do not disclose to the patients that he or she has cancer, they may not live to see another day. Showing justice by allowing a patient to choose the therapy treatment of his desire and doctors provide full resources needed for a successful treatment procedure (7, 11, 13, 27, 40).

References

1. Ahmadzadehfar H, Rahbar K, Kürpig S, Bögemann M, Claesener M, Eppard E, Gärtner F, Rogenhofer S, Schäfers M, Essler M. Early side effects and first results of radioligand therapy

with 177 Lu-DKFZ-617 PSMA of castrate-resistant metastatic prostate cancer: a two-centre study. EJNMMI research. 2015 Dec;5(1):36.
2. Belcaro G, Hosoi M, Pellegrini L, Appendino G, Ippolito E, Ricci A, Ledda A, Dugall M, Cesarone MR, Maione C, Ciammaichella G. A controlled study of a lecithinized delivery system of curcumin (Meriva®) to alleviate the adverse effects of cancer treatment. Phytotherapy research. 2014 Mar 1;28(3):444-50.
3. Bendixen M, Jørgensen OD, Kronborg C, Andersen C, Licht PB. Postoperative pain and quality of life after lobectomy via video-assisted thoracoscopic surgery or anterolateral thoracotomy for early-stage lung cancer: a randomized controlled trial. The Lancet Oncology. 2016 Jun 1;17(6):836-44.
4. Blackadar CB. Historical review of the causes of cancer. World journal of clinical oncology. 2016 Feb 10;7(1):54.
5. Coolbrandt A, Dierckx de Casterlé B, Wildiers H, Aertgeerts B, Van der Elst E, Achterberg TV, Milisen K. Dealing with chemotherapy-related symptoms at home: a qualitative study in adult patients with cancer. European journal of cancer care. 2016 Jan 1;25(1):79-92.
6. Davis KM, Kelly SP, Luta G, Tomko C, Miller AB, Taylor KL. The association of long-term treatment-related side effects with cancer-specific and general quality of life among prostate cancer survivors. Urology. 2014 Aug 1;84(2):300-6.
7. DeSantis CE, Lin CC, Mariotto AB, Siegel RL, Stein KD, Kramer JL, Alteri R, Robbins AS, Jemal A. Cancer treatment and survivorship statistics, 2014. CA: a cancer journal for clinicians. 2014 Jul 1;64(4):252-71.
8. Duffy MJ, Sturgeon CM, Sölétormos G, Barak V, Molina R, Hayes DF, Diamandis EP, Bossuyt PM. Validation of new cancer biomarkers: a position statement from the European group on tumor markers. Clinical chemistry. 2015 Jun 1;61(6):809-20.
9. Enriquez-Navas PM, Kam Y, Das T, Hassan S, Silva A, Foroutan P, Ruiz E, Martinez G, Minton S, Gillies RJ, Gatenby RA. Exploiting evolutionary principles to prolong tumor control in preclinical models of breast cancer. Science translational medicine. 2016 Feb 24;8(327):327ra24-.
10. Golden EB, Chhabra A, Chachoua A, Adams S, Donach M, Fenton-Kerimian M, Friedman K, Ponzo F, Babb JS, Goldberg J, Demaria S. Local radiotherapy and granulocyte-macrophage colony-stimulating factor to generate abscopal responses in patients with metastatic solid tumors: a proof-of-principle trial. The Lancet oncology. 2015 Jul 1;16(7):795-803.
11. Guy GP, Machlin SR, Ekwueme DU, Yabroff KR. Prevalence and Costs of Skin Cancer Treatment in the US, 2002− 2006 and 2007− 2011. American journal of preventive medicine. 2015 Feb 1;48(2):183-7.
12. Hirschey R, Lipkus I. BREAST CANCER SURVIVORS'ATTRIBUTIONS OF LACK OF EXERCISE AS CAUSES FOR CANCER DIAGNOSIS AND RECURRENCE RISK. InANNALS OF BEHAVIORAL MEDICINE 2017 Mar 1 (Vol. 51, pp. S1790-S1791). 233 SPRING ST, NEW YORK, NY 10013 USA: SPRINGER.
13. Japanese Gastric Cancer Association. Japanese gastric cancer treatment guidelines 2014 (ver. 4). Gastric cancer. 2017 Jan 1;20(1):1-9.
14. Jiang T, Wang Y, Zhou F, Gao G, Ren S, Zhou C. Prognostic value of high EZH2 expression in patients with different types of cancer: a systematic review with meta-analysis. Oncotarget.

2016 Jan 26;7(4):4584.
15. Jordan VC. The new biology of estrogen-induced apoptosis is applied to treat and prevent breast cancer. Endocrine-related cancer. 2015 Feb 1;22(1):R1-31.
16. Kasznicki J, Sliwinska A, Drzewoski J. Metformin in cancer prevention and therapy. Annals of translational medicine. 2014 Jun;2(6).
17. Khalil DN, Smith EL, Brentjens RJ, Wolchok JD. The future of cancer treatment: immunomodulation, CARs and combination immunotherapy. Nature reviews Clinical oncology. 2016 May;13(5):273.
18. Lamb R, Ozsvari B, Lisanti CL, Tanowitz HB, Howell A, Martinez-Outschoorn UE, Sotgia F, Lisanti MP. Antibiotics that target mitochondria effectively eradicate cancer stem cells across multiple tumor types, treating cancer like an infectious disease. Oncotarget. 2015 Mar 10;6(7):4569.
19. Lawrence MS, Stojanov P, Mermel CH, Robinson JT, Garraway LA, Golub TR, Meyerson M, Gabriel SB, Lander ES, Getz G. Discovery and saturation analysis of cancer genes across 21 tumor types. Nature. 2014 Jan;505(7484):495.
20. Linder LA, Seitz M. Through their words: sources of bother for hospitalized children and adolescents with cancer. Journal of Pediatric Oncology Nursing. 2017 Jan;34(1):51-64.
21. Miller KD, Siegel RL, Lin CC, Mariotto AB, Kramer JL, Rowland JH, Stein KD, Alteri R, Jemal A. Cancer treatment and survivorship statistics, 2016. CA: a cancer journal for clinicians. 2016 Jul 1;66(4):271-89.
22. Miyake K, Ishimoto T, Sugihara H, Eto K, Izumi D, Kurashige J, Hiyoshi Y, Iwagami S, Baba Y, Miyamoto Y, Yoshida N. Helicobacter pylori infection via miR-328 suppression and CD44 expression in gastric mucosa causes gastric cancer initiation and progression.
23. Moore SC, Lee IM, Weiderpass E, Campbell PT, Sampson JN, Kitahara CM, Keadle SK, Arem H, de Gonzalez AB, Hartge P, Adami HO. Association of leisure-time physical activity with risk of 26 types of cancer in 1.44 million adults. JAMA internal medicine. 2016 Jun 1;176(6):816-25.
24. Morales DR, Morris AD. MetInternal Medicine treatment and prevention. Annual review of medicine. 2015 Jan 14;66:17-29.
25. Mottet N, Bellmunt J, Bolla M, Briers E, Cumberbatch MG, De Santis M, Fossati N, Gross T, Henry AM, Joniau S, Lam TB. EAU-ESTRO-SIOG guidelines on prostate cancer. Part 1: screening, diagnosis, and local treatment with curative intent. European urology. 2017 Apr 1;71(4):618-29.
26. Mucci LA, Hjelmborg JB, Harris JR, Czene K, Havelick DJ, Scheike T, Graff RE, Holst K, Möller S, Unger RH, McIntosh C. Familial risk and heritability of cancer among twins in Nordic countries. Jama. 2016 Jan 5;315(1):68-76.
27. Naksuriya O, Okonogi S, Schiffelers RM, Hennink WE. Curcumin nanoformulations: a review of pharmaceutical properties and preclinical studies and clinical data related to cancer treatment. Biomaterials. 2014 Mar 1;35(10):3365-83.
28. Naugler WE, Karin M. NF-κB and cancer. InMolecular Oncology: Causes of Cancer and Targets for Treatment 2015 Jan 1. Cambridge University Press.
29. Oh ET, Kim CW, Kim HG, Park HJ. Abstract B110: Brusatol-induced degradation of HIF-1α by inhibiting c-Myc causes colorectal cancer cell death under hypoxia.
30. Oosterveld-Vlug M, Donker G, Atsma F, Brom L, de Man Y, Groenewoud S, Onwuteaka-Philipsen

B. How do treatment aims in the last phase of life relate to hospitalizations and hospital mortality? A mortality follow-back study of Dutch patients with five types of cancer. Supportive Care in Cancer. 2018 Mar 1;26(3):777-86.
31. Pan Y, Yang K, Wang Y, Zhang L, Liang H. Could yoga practice improve treatment-related side effects and quality of life for women with breast cancer? A systematic review and meta-analysis. Asia-Pacific Journal of Clinical Oncology. 2017 Apr 1;13(2).
32. Park S, Kim Y, Shin HR, Lee B, Shin A, Jung KW, Jee SH, Kim DH, Yun YH, Park SK, Boniol M. Population-attributable causes of cancer in Korea: obesity and physical inactivity. PLoS One. 2014 Apr 10;9(4):e90871.
33. Peabody FW. The care of the patient. Jama. 2015 May 12;313(18):1868-.
34. Pichler M, Calin GA. MicroRNAs in cancer: from developmental genes in worms to their clinical application in patients. British journal of cancer. 2015 Aug;113(4):569.
35. Pizzo PA, Poplack DG. Principles and practice of pediatric oncology. Lippincott Williams & Wilkins; 2015 Jun 24.
36. Powles T, Eder JP, Fine GD, Braiteh FS, Loriot Y, Cruz C, Bellmunt J, Burris HA, Petrylak DP, Teng SL, Shen X. MPDL3280A (anti-PD-L1) treatment leads to clinical activity in metastatic bladder cancer. Nature. 2014 Nov;515(7528):558.
37. Putora PM, Oldenburg J. The Kafkaesque process of cancer diagnosis. Journal of Clinical Oncology. 2014 Mar 3;32(10):1087-8.
38. Razzaghi H. Leading causes of cancer mortality—Caribbean region, 2003–2013. MMWR. Morbidity and mortality weekly report. 2016;65.
39. Savard J, Ivers H, Savard MH, Morin CM. Cancer treatments and their side effects are associated with aggravation of insomnia: results of a longitudinal study. Cancer. 2015 May 15;121(10):1703-11.
40. Schnipper LE, Davidson NE, Wollins DS, Tyne C, Blayney DW, Blum D, Dicker AP, Ganz PA, Hoverman JR, Langdon R, Lyman GH. American Society of Clinical Oncology statement: a conceptual framework to assess the value of cancer treatment options. Journal of Clinical Oncology. 2015 Jul 13;33(23):2563-77.
41. Servant N, Roméjon J, Gestraud P, La Rosa P, Lucotte G, Lair S, Bernard V, Zeitouni B, Coffin F, Jules-Clément G, Yvon F. Bioinformatics for precision medicine in oncology: principles and application to the SHIVA clinical trial. Frontiers in genetics. 2014 May 30;5:152.
42. Silverman DT. Diesel exhaust causes lung cancer: now what?. Occup Environ Med. 2017 Jan 9:oemed-2016.
43. Siu LL, Lawler M, Haussler D, Knoppers BM, Lewin J, Vis DJ, Liao RG, Andre F, Banks I, Barrett JC, Caldas C. Facilitating a culture of responsible and effective sharing of cancer genome data. Nature medicine. 2016 May;22(5):464
44. Skaaby T, Husemoen LL, Thuesen BH, Pisinger C, Jørgensen T, Roswall N, Larsen SC, Linneberg A. Prospective population-based study of the association between serum 25-hydroxyvitamin-D levels and the incidence of specific types of cancer. Cancer Epidemiology and Prevention Biomarkers. 2014 Apr 30:cebp-0007.
45. Stewart BW, Wild CP. World Cancer Report 2014. Health. 2017 Oct 24.

46. Thorsen LB, Offersen BV, Danø H, Berg M, Jensen I, Pedersen AN, Zimmermann SJ, Brodersen HJ, Overgaard M, Overgaard J. DBCG-IMN: a population-based cohort study on the effect of internal mammary node irradiation in early node-positive breast cancer. Journal of Clinical Oncology. 2015 Nov 23;34(4):314-20.
47. Vineis P, Stewart BW. How do we judge what causes cancer? The meat controversy. International journal of cancer. 2016 May 15;138(10):2309-11.
48. Walter J. Fran's Friend Has Cancer. Ploughshares. 2017;43(1):168-75.
49. West AC, Johnstone RW. New and emerging HDAC inhibitors for cancer treatment. The Journal of Clinical Investigation. 2014 Jan 2;124(1):30-9.
50. Wiener L, Weaver MS, Bell CJ, Sansom-Daly UM. Threading the cloak: palliative care education for care providers of adolescents and young adults with cancer. Clinical oncology in adolescents and young adults. 2015 Jan 1;5:1.