SOME ASPECTS OF CANCER AND TREATMENT: A REVIEW

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Objective :- To present a review paper on "Some aspects of cancer and treatment".

Abstract:-Cancer is the second leading cause of human death globally, in the year 2014 in U.S.A out of 1,665,540 people 5,85,720 died due to cancers. This heterogeneous group of disease has several risk factors for its origin like DNA damage, epigenetic, dietary habits, modern life style, environmental factors, etc. Clinical manifestation is known mostly after the second stage in females and males, self examination of breast and reproductive parts is suggested ,but is not possible in case of internal malignancies to know ones normal health conditions.

Diagnosis involves several methods like radiography of organs, magnetic resonance imaging for tumor, ultrasound, computed tomography, position emission topography, etc. Histopathological studies help to classify type of cancer. Depending on the stage of cancer (prognosis) size, position of tumor, metastatic tumor, surgery is employed, like radiotherapy alone or in combination depending on the need. Chemotherapy is done using anticancer drugs to treat organ and blood cancer. Immunotherapy involves using fresh and frozen donor NK cells for blood cancer treatment.

Ayurveda a traditional, ancient system use natural products extracted from plant origin to treat cancer and other diseases and Ayurveda claim to cure cancer and other diseases without any toxicity to the human body, this can be proved by research proof in Ayurveda. Such therapy is not possible with chemotherapeutic synthetic drugs at present available in the international market and this is now globally accepted and established. It is recommended that Ayurveda medicine from plants and cow urine distillate must be promoted globally to cure all types of human ailments. SeNPs act as anticancer agents, rapidly detoxify carcinogens inhibit invasion by tumour cells metastases.

Body of paper: - Introduction, Epidemiology, Risk factors, Treatment and Discussion are the subdivision containing relevant information obtained and used from research papers to write this review paper.

Conclusion: - An ideal proven cure is yet to be discovered. Science, medicine and technology has failed to provide cure for cancer, free from recurrence and side effects. Several risk factors are causes of cancer. Many therapies to treat cancers

are available. The scope of this review paper article being limited, radiotherapy, surgery, chemotherapy treatments are included. Chemotherapy alone or in combination is toxic to normal tissue and their efficacy appears to be limited. No treatment method is 100% efficient and fool proof. World wide data in last few decade show rise in cancer cases. Quality of life, healthy life style, concern about environment and awareness will help in reducing cancer, Probably Ayurveda medicine system may prove a “gold standard” in future to treat cancer globally.

Keywords :- Cancer, Risk factor, Diagnosis, Treatments, Ayurveda .

INTRODUCTION

Cancer composes greater than 277 several kinds of disease associated with abnormality of cell growth and development, occurs in many parts of animal and human body. Many factors govern cancer development. It ranks second among disease and is globally prevalent and killed 5,85,720 human out of the approximately 1,665,540 sufferers in the United States of America (R. Siegel et.al.,2013)

Men suffer from prostate, lung, bronchus, colon, rectum, and urinary bladder cancer, however highest percentage of breast, lung, bronchus, colon, rectum, uterine corpus and thyroid cancer recorded in male and female respectively; and men are more affected by cancer of prostate and women due to breast cancer (R. Siegel and K.D.Miller, A.Temal, 2016). Blood cancer and cancer associated with the brain and lymph nodes respectively cause mortality in children (D. Schottenfeld, J.F. Fraumene Jr, 2006; K. Y. Yoo, H.R. Shin, 2003).

An orderly mutation in genes alter normal cell functions. Smoking lead to lung cancer due to cancer initiating chemicals in it (K.Aizawa, C.Liu , S.Tang,et.al .,2016). Environment pollution has led to many types of cancers either directly or indirectly by disrupting nuclear and cytoplasmic functions of the cells and by way of genetic disorders and genetic mutations which later cause mortality. Radiations, viruses and bacteria act as cancer inducing agent in 7% cases of human population (D.M.Parkin,2002).Cancer lead to disturbances in functions of cell organelles and also of important genes, eventually affecting the cell cycle culminating in uncontrolled cell division (M. Seto et.al.,2010), under normal condition protoncogenes control cell cycle but gene mutation transform it into oncogenes which cause tumor growth .Absence of tumor suppressor genes initiate abnormal cell division (G.Matlasheuske et.al., 1984). Greater than 30 type of protein repair gene exist, on translation these proteins and enzymes repair abnormal cells. (Q,Wel,L L and Li, D.Chen, 2007).One of the function of repair genes is to remove uracil from DNA to make it normal , ultra violet light cause such DNA lesion (R.D. Wood et.al.,2001).

Molecular processes like methylation of DNA, modification of first one and position of nucleosome have been linked to origin of cancer and these epigenetic modification have a role in cancer (E.V.Alvarez.et.al.,2008, A. Portea ,M.Esteller,2010). Approximately 5-6% reduction in total quantity of 5-methylcytosine was described as an important characteristics of cancer cells (S.E.Goelz, et.al.,1985) this is also supported by a parallel work on modifications of histone protein and position of nucleosome respectively as reflected in the reduced levels in monoacetylated H4K16 proteins in cancer cells (M.F. Fraga et.al.,2005).Presently the basis of molecular mechanisms is a mystery regarding all families of chromatin altering proteins, and their functions accompanying cancer development (S. Sharma ,T.K. Kelly, P.A. Jones, 2010) .

Oncogene formation and genetic disorders result due to genetic changes. Translocation of chromosome (gene Bcr and Oncogene Abl in chronic blood cancer) point mutation (Ras gene in cancer of colon) deletion (Erb-B gene in breast cancer), amplification (N-myc in neuroblastoma) and insertion activation (C-myc in acute blood cancer) are some molecular causes of some cancer. When exchange of segment of DNA occur between chromosome 9 and 22 it result in chronic blood cancer often in elderly person their blood contain a biomarker Ph 1 and is the criteria for diagnosis of cancer in about 95% of patients. The relation of Bcr gene to Abl oncogene is a new gene combination responsible for protein production with kinase activity (H.Joensus, S. Dimitriyevic 2001, C.R King et.al.,1985, M.C.Heinrich et.al.,2002, R.K Thomes et.al.,2007).

Mutated p53 gene product a protein that cause disruption of molecular events of p53 gene and later lead to cancer, 60% of cancer cases exhibit abnormality in p53 gene which under normal condition control cell division, cell death, senescence angiogenesis, differentiation and metabolism of DNA . A majority of mutations in p53 gene take place in DNA binding position and the unpaired disability of genes is regulated by p53 replication. The p53 in conjunction with CDK1-P2 & CDC2 hold cancer cells in G1 and G2 stage of cell cycle (S.W. Chae et.al.,2011 and W.R.Taylor and G.R.Stark 2001),it appears that p53 acts as an inhibitor or a facilitator of cancer cells, other genes may cause DNA damage, now p53 proteins link to DNA and is instrumental in WAF1 gene activation (I.K.Bukholm and J.M.Nesland 2000 and I.B.Koninson 2002). In the next step p53 combine with CDK2 and finally inhibit the effect of p21 for the next phase of cell cycle. Stimulation of DNA repairing proteins. induction of apoptosis and stopping of cell cycle respectively are the ways by which p53 imparts its anti cancer effect (G.Matlashwski et.al., 1998, P.May and E.May 1999, O.M.Mcbride et.al.,1986).

EPIDEMIOLOGY

Skin cancer

According to (Jamal et. al., 2008; Kavoussi et. al., 2012) malignancies in skin for non melanoma include basal cell carcinoma (BCC) and squamous cell carcinoma (SqCC) arising from epidermal keratinocytes but epidermal melanocytes give rise to epidermal melanocytes skin cancer (MSC).These skin cancer are common in white skinned humans of the world specially in United States over 1 million cases were recorded and 10,850 deaths occur annually (William et. al., 2008).It accounts for 35-45% of all neoplasms in Caucasians, 4-5% in Hispanics, 2-4% in Asians, and 1-2% in Blacks and appear relatively low in dark skinned people (Bradford, 2009). Mutti (2012) reported an elevated trend of most common skin cancer MSC and NMSC occurring in white are on rise in other parts of the world but mortality rate has stabilised. Cutaneous squamous cell carcinoma (cSSC) ranks second common type of skin cancer after BCC and account of 20% of all cutaneous cancers (Howley and Pfister, 2015). In United State America MSC is 6th leading cause of skin cancer .Non Caucasians exhibit reduced, over all incidence of MSC, excluding African Americans and other ethnic groups die more due to this malignancy than Caucasians population according to (Stubblefield and Kelly, 2014). In Southern Governorates of Yemen skin cancer is common in patients and resembles international figures. Although incidence of MSC appear to be low but female suffer more than male counterpart (Amar Bin Al-Zou et,al.,2016).

Breast Cancer

In the year (2018) 626,679 women deceased of breast cancer out of the 2.1 million newly detected cases (Bray, F. et.al., Global Cancer Statistics 2018). Annual rise was 3.1% cases from 1980 to greater than 1.6 million in 2010 (Bray, F. et.al., 2015). A major part of women population greater than 60 years of age was out of 49.5% of world women population, so priority on relapses of this disease is necessary. In 2017 about 160000 patients had an advanced stage of breast cancer (Mariotto et.al.,2017). Incidence in high income group appear to be more (92 per 100,000 in N. America) in comparison to lower income group (27 per 100,000 in middle Africa and Eastern Asia) according to Torre, L. A., Siegel, R. L., Ward, E. M. and Jemal, 2017. Many studies shows breast cancer affect earlier in Asian women then at 60-70 years of age in other parts of the world as reported by workers (Leong, S. P. L. et.al., 2010; Bhoopathy, N. et.al., 2011; Raina, V. et.al.,2005; Agarwal, G., Pradeep, P. V., Agarwal, V., Yip, C.H. and Cheung, 2007; Wong, F. Y., Tham, W. Y., Nei, W. L., Lim, C. and Miao, H. 2018).

Vagina cancer

Vaginal cancer first identified in 1952 by Graham and Meigs. Annually number of new case (less than 2500)and death (less than 1000) occur in USA (Jemal A, Siegel R, Ward E, Murray T, Xu J, Smigal C, et.al., 2006).Only 1-3% cases was reported worldwide (Graham, W.T ,2005). Women above the age of 70 years suffer and

constitute 50 % vaginal cancer cases and 80% cases of vaginal cancers belong to squamous cell type in some reports (Herbst A.L, Norusis M.J, Rosenow P.J, Welch W.R, Scully R.E, 1979). These researches pointed at the prevalent prognosis of vaginal melanoma based on histological method and their survival report during the year 1985-1994 (NDCB report) and better prognosis is expected by patients. Chirag A. et.al., (2009) identified 2149 women suffering from vaginal cancer between 1990 to 2004. This diagnosis in USA used data from 17 populations in the surveillance, epidemiology and end results SEER program.

Lung cancer

Lung cancer is a malignant tumor (Merck Manual Professional edn, 2007 and treatment patient version, 2016). Incidence rates are highest in North America, Europe and East Asia , more than one third cases are in China, lowest in Africa and South Asia (World cancer report).In 2012 throughout the globe1.8 million people suffered but 1.6 million died due to lung cancer (World cancer report, WHO chapter 5, 2014). It is the most common cancer that kill men and second most common in women after breast cancer (World cancer report, WHO chapter 5, 2014).Globally incidence and death rates is of common occurrence in male, but it ranks third highest in women after breast cancer. In USA military veterans have a 25 -50% higher rate of lung cancer due to smoking habits (Honouring veterans, Good health, 2014).

Rectal Cancer

According to Siegel R, Desantis C, Jemal A (2014) rectal cancer has emerged as the frequent second most common cancer of the largest intestine. Colorectal cancers are second common cancers in global human population, share of rectal cancers represent (28%) in the large intestine whereas proximal colon cancers occur in 42% of cases. Both are considered as a unit and comprises third most common malignancy amongst male and second in female in the world, but third main cause of cancer death in USA. GLOBOCON (2012) has estimated high rates in Australia/ New Zealand (44.8 and 32.2 per 10000 men and women respectively) lowest in the Western Africa (4.5 and 3.8 per 100,000 men and women respectively). Mortality due to CRC appear to be higher in less developed region of the world. 20.3% men and 11.7% women die in Central and Eastern Europe and lowest in both sexes in Western Africa. A large number of all rectal cancers has been found in adults aged 65 and older (1.5% for 50-64 years and 4.3% for ages above 65).

Urinary bladder cancer

On a global scale nearly two third of all sorts of urinary cancers are ninth most common cancer, 3 to 4 times more prevalent in men. Humans above 65 years of age die due to urinary bladder cancer (American Cancer Society, 2007; Parkin, D.M.,

Bray, F.I., Ferlay, J, Pisani P. 2005, American Cancer Society, 2009). A clinico-pathological study on bladder carcinoma by Mansi Sharma et.al., (2017),revealed that 88% patients were smokers mostly male. Urinary bladder specimens were histologically studied at GMC Jammu, India. Benign papilloma and aggressive anaplastic urothelial tumors accounts for 90 % of all bladder tumors (Kumar,V .et.al.,2004). Adenocarcinoma of the bladder rarely occur,but 5% of all the malignant bladder tumors belong to squamous cell carcinoma (Rosai,J, 2004).

Blood Cancer

Blood cancer include a vast heterogeneous group of malignancies of circulatory system and associated structure in the human body. Bone marrow cancers occur as leukaemia and myeloma, but lymphomas in lymphatic system are most common types. In the year 2000 about 2,56000 children including adults around the world suffered from a type of leukaemia and out of this 3% i.e. 209000 deceased, in this year total death from blood cancer was 7 million . The 12^{th} most common class of neoplasm diseases was leukaemia it is the 11^{th} most common human killer disease. According to one estimation 245000 humans from USA suffer with one or the other type of leukaemia, some had remission or cure. But in 2008 about 44,270 new cases were detected accounting for 2.9% of all cancers in USA and 30.4% of all blood cancers. This 2.9% cases of leukaemia excluded simple basal cell and squamous cell skin cancers, children develop mostly acute lymphoblastic leukaemia, it represent about 1/3 of all cancers recorded. Infants below 12 months of age and older children both suffer from the second most common type of leukaemia. Boys are more afflicted than girls, incidence is twice in white American children in comparison to black American children. 90 % of adults diagnosed leukaemia in USA(Mathers, Colin D, Cynthia Boschi-Pinto, Alan D Lopez and Christopher JL Murray (2001), Nath A, Agarwal R, Malhotra P, Varma S. 2010).

Thyroid cancer

An increasing trend in thyroid cancer cases since 1990 occurred and by 2018 in USA 53,990 cases were on record (Society, A.C.2018). It is one of the most common endocrine neoplasma and accounts approximately 3% of the all malignant tumors in humans,75% women suffers from this cancer (Society, A.C.2018 and Chen, A.Y.et.al.,1988-2005).Two third human under 55 year of age develop thyroid tumor (Society, A.C.2018) . Women and younger people exhibit a lesser intense form of thyroid malignancy but mortality has been on rise in the last 18 years (Howlader, N.et.al., 2017). About 20% patients depict local recurrence but only 10% of patients develop metastases ten years post diagnosis (Eustatia-Rutten, C.F.et,al.,2006).In 2009 thrice more thyroid cancer patients per lakh population in contrast to the same was recorded in 1975, which earlier suffered from papillary thyroid cancer (Howlader, N.et.al.,2017; Society, A.C.2018 ,Davies L, and Welch,H.G,2014) differentiated thyroid cancer have follicular cell origin and are papillary, follicular, oncocytic carcinoma respectively. According to Hiirthle and Rodrigo et.al., (2019) advocated that all patients suffering from differentiated thyroid cancer need a different approach from other types of cancer regarding diagnosis, risk factors, initial therapy , adjuvant

therapy and their follow up and management like personalized medicine practices for poorly differentiated carcinoma and anaplastic carcinoma also. Across the world where iodine deficiency doesn't exist in soil, still women exhibit 5% and men 1% palpable thyroid nodules respectively. (Vander,J.B.et.al.,1968; Tunbridge, W.M. et.at.,1977; Tan,G.H. and Gharlib H,1999 and Guth,S.et,a.,1977).

RISK FACTOR

Skin Cancer

Cutaneous squamous cell carcinoma (cSCC) develop in all regions of the body including mucosa and genitals, but parts exposed to UV radiation like head, ears, neck and back hands are more prone. Exposure to chemicals continuously like tar, arsenic containing water, use of herbicides, insecticides and tobacco consumption, extreme burns, chronic ulcer and some kinds of human papilloma virus are carcinogenic (Howley P.M, Pfister H.J, 2015). In some families in younger age group BCC appear to have genetic bases and are manifested as lesions on skin and may be due to DNA replication disruption, and repair dysfunction (Castori et.al.,2012). Immunosuppressed patients suffer more from BCC (Reinau D, Surber C, Jick SS, Meier C.R, 2014).

Breast Cancer

Breast cancer approximately 10 % are inherited due to a trend in their family history (Leong,S.P.et.,al,2010), but varies mostly in ethnic groups and countries across the globe in relation to early onset , bilateral and/or TNBC. According to Kuchenbaecker, K. B. et al, (2017) the mutation tumor suppressor genes BRCA1 and BRCA2 develop breast cancer on activation in patients above 68 year of age. Advanced maternal age at first pregnancy and no awareness of mammography screening related to life style and other environmental factors are also risk factor (Althuis, M. D., Dozier, J. M., Anderson, W.F.Devesa, S. S. and Brinton, L. A. 2005).

Vagina cancer

Smoking, younger age at coitarche, more male as sexual partners during life time, exposure of uterus to diethylstilbestrol (DES) (Herbst AL, Norusis MJ, Rosenow PJ, Welch WR, Scully R.E,1979 and Herbst AL,et.al., 1970) human papilloma virus infection are causative factors (Daling JR, Madeleine MM, Schwartz SM, Shera KA, Carter JJ, McKnight B, et.al., 2002 and Hellman K, Lundell M, Silfversward C, Nilsson B, Hellstrom AC, Frankendal. B, 2006).Cervical cancer causing agents lead to vaginal cancer and here HPV infection act as an important cofactor in most instances(Daling,J.R. et,al.,2002).

Lung cancer

Damage to DNA and epigenetic changes, apoptosis and DNA repair mechanism impair normal cell divisions (Brown,K.M.et.al,2010). Cigarette smoking appear as one main culprit because 73 carcinogens were detected in smoke include benzo(α)pyrene (Hech. S. S,2012 ,and Kumar,V.et.al.,2013) a radioisotope of polonium 210 and NNK,1-3 butadiene (Kumar,V.et.al,2013). Worldwide in (2000) about 90% of lung cancer victims were men 7% were women (Peto,R.et.al.,2006). Smoking accounts for 85% of the lungs cancers(Lung carcinoma:Tumors.Merck Manual Professional edn, 2007).Passive smokers are also at high risk of lung cancer a study in U.S.A ,Europe and U.K. had revealed the fact (Alberg, A.J. and Samet,J.M.200; Jaakola, M.S; Jaakola, J.J. 2006 and Parkin D.M. 2010) that 3,400 humans die in United State of America as a result of passive smoking. Smoking cannabis lead to doubling of lung malignancy according to a 2014 review (Undemer M; UrbanT and Perriot J. 2014). In U.S.A. radon gas a decay product of uranium ionize DNA and mutate gene and caused death (Choi H, Mazzone P; 2014) of 21,000 humans. Outdoor air pollution cause 1-2% cancers while smokers working in asbestos industries have 45-fold risk of development of lung cancer (Alberg A.J.and Amet, J.M;2010 and Tobias J. and Hochauser D, 2012). 8% of lung cancer are inherited (Yan,I.A. et,al.,2013), another risk factor in lung cancer is polymorphism of chromosome 5,6 and 15 (Larsen, J.E and minna,D,2011).Other factors enlisted include metals and combustion and incomplete combustion products; rubber products, silica crystal particles, ionising radiations and toxic gases like mustard (Congliano, V.J.et,al.,2011).

Rectal cancer

Family history of colorectal cancer might be having a bearing on risk of colon cancer more in comparison to rectal cancer (Ivei,E.K.et.al.,2004). Others like heredity non polyposis (FAP) an d family adenomatous polyposis cause the rectal cancer (Baxter, N.N et.al.,2005). Incidence of cancer of colon and rectum respectively was 38% and 20 % in diabetic subjects(Yuhara,H.et.al.,2011).Age and gender appear as risk factors in both colon and rectal cancers(Wei,E.K.et.al.,2004). In a systematic review increase in BMI has been co-related with higher incidence of CRC 24% in men and 9% in women, (Renehen,A.G.et,al.,2008) . Diets containing greater milk and dairy product are attributed in significant reduction in the colon cancer as a risk factor, but not in case of rectal (Aune,D.et.al., 2013). Similarly an inverse connection between intake of magnesium and risk of both colon and rectal cancer exist (Larsson, S.C.et.al.,2005). Cigarette smoking slightly elevate risk of rectal than colon cancer respectively(Wei,E.K.et.al.,2004 and Terry, P.D.et.al.,2002) .

Urinary Bladder Cancer

Various risk factors like smoking chronic cystitis, pelvic irradiation, cyclophosphamide, genetic predisposition, some occupation and dyes, schistosomal infection and urachal residues cause bladder carcinoma (American cancer society, 2009; Rehn L. Blasengeshwulste 1895; Ferguson A. R,1911,and Nocks B.N.et..al., 1983).

Blood cancer

Incidence more in older age adults, HIV infection, weakened immune system, HIV/AIDS patients using corticosteroids, or organs transplant, hereditary family history, smoking, White race become more susceptible to suffer from blood cancer. Genetic disorders cause blood cancer. Lymphoma risk factors include age and gender, early exposure to Hodgkin lymphoma, lowered immunity, Epstein Barr virus, family history, breast feeding, pesticide contact, alcoholism, smoking and other factors (Mathers, Colin D, Cynthia Boschi-Pinto, Alan D Lopez and Christopher JL Murray 2001; Ross JA, Kasum CM, Davies SM, Jacobs D.R, Folsom A.R, Potter J.D, 2002; Wiernik, Peter H. 2001; Robinette, Martin S. Cotter, Susan; Van de Water 2001 and Nath A, Agarwal R, Malhotra P, Varma S, 2010) .

Thyroid cancer

Previous exposure to radiation is main environmental factor induces thyroid oncogenesis . Family history certain genetic diseases lead to tumor formation, most cancers of thyroid are idiopathic (Nagataki, S. and Nystrom, E 2002; Cardis,E.et.al.,2006 and Network, NCC,2017). Risk seem to be inversely related to the age and dose at which the exposure to radiation occurred (Cardis E.,et.al.,2006, Furukawa, K., et.al.,2013 and Kleinerman, R.A. et.al.,2006). Familial adenomatous polyposis due to mutation of APC gene in germ line apart from other cancers, also favour development of cribriform modular variants of papillary type and other types of thyroid carcinoma and screening of individual below 15 year of age for early detection must be done (Tomoda, C., et.al.,2004 ; Soravia, C., et.al.,1999 ; Cetta, F. et.al.,2000 Choi, W.J. and Kim, J., 2014). Mutations in PRKARIA gene and Peutz-Jeghers syndrome cause differentiated thyroid cancer. PTEN germ line mutation cause benign and malignant breast and thyroid cancers (Stratakis, C.A., et. al.,1997; Ngeow, J.,et.al.,2011 and Giardiello, F.M., et.al.,1987).Ras oncogene become stimulated lead to papillary and follicular cancer respectively (Kondo,T.et.al.,2006). RET kinase activation by a germline mutation lead to familial medullary thyroid cancer, 50% cases of sporadic thyroid medullar cancer have RAS/RAF activation.

TREATMENT

Skin cancer

Chemotherapy, surgery and radiation therapy are the general types of cancer treatments for most if not all cancers. Non melanocytic skin cancer of 2mm diameter tumor, reoccur in 5% cases post surgery treatment (M.M.chren.et.al.,2011 and V. Samarsinghel and V.Madan,2012). Excision of superficial tumor with a border of 2-3 mm healthy skin deep down to hypodermis is advisable(NICE, Melanoma,2015).High recurrence risk is present after treatments such as cryotherapy ,curettage and electrodessication, topical cream applications of 5-fluorouracil or imiquimod, combined curettage and diathermia for BCC and Bowen's diseases of thorax and

limbs. Radical surgery is the preferred choice post recurrence of skin cancer (V.Smarsinghe and V.Madan, 2012). Local treatment of malignant melanoma of variable diameter require radical excision accompanied by healthy skin border which extends deep to the fascia if this cannot be achieved, skin graft is recommended (NICE melanoma, 2015),also decarbazine, temazolomide or carboplatin, palclitaxel are used (M.C.F. Simoes ,et.al.,2015).

Breast cancer

Systematic therapy ahead of surgery for large tumors to reduce the size (neoadjuvant) and post surgery treatment in case of adjuvant type, both utilize chemical drugs for breast cancer seem to be a good practice. All patients exhibiting ER-positive and or PR positive breast cancer, who don't belong to HE2 status, must be administered endocrine therapy to block the ER activity (Cortazar P.et.al., 2014). Resection of metastatic breast cancer based on pattern and metachronicity in selected patients appear to be a controversial method of treatment (Golse,N and Adam, R. 2017). Therapies depend on responsiveness. Palliative surgery for locally progressing tumor to control it from spreading works in some patients (Dare,A.J.et.al.,2015). Multigene panels for metastatic cancer is a research tool (Cardosa.F. et.al.,2018). Circulating tumor markers (cancer antigen 15-3) is a protein from breast cancer cells must not be considered as a criteria to change therapy without confirming by imaging that tumor is spreading (Cardosa,F.et.al.,2019). The most appropriate therapy to recommend appears impossible for breast cancer. Serial biopsies can't be employed; liquid biopsies, nanotechnology and functional imaging may be helpful. The driving pathway at every moment will help in knowing correct determination and usages of the optimal series of therapies, presently not known. The requirement of advanced breast cancer for this ABC charter proposes intense collaborative effort by all personal concern with diseases and treatment of cancers to provide cure for cancer is the need of the hour.

Vaginal cancer

According to Stock R.G.et.al.,(1995) a study review of 100 cases from 1962-1992 revealed disease free survival after surgery in subjects suffering from vaginal cancer, a better option than radiation therapy alone for stage II disease patients but not suited for stage I patients. Peters W.A (2000) demonstrated clinical significant improvements in both progression free survival and overall survival with cisplastin based chemotherapy provided along with radiation therapy at various stages of cervical cancer (Rose PG. et.al.,1999 and Whitney C. W.et.al.,1999). Vaginal cancers have treatment like cervical cancer (Henson D. and Tarone R,1977). Because both the organs have partly same epithelial structure and same embryonic origin and same risk factors (Greasman W.T. 1998; Davis,K.P.et.al.,1999 and Grigsby P.W,2002). Research work by Chirag, A. Shah.et.al.,(2009) arrived at some conclusions like prime importance of prognostic factors in context to vaginal cancer (stage, tumors, size, histology and treatment modulations) treatment. Assessment to

ascertain that chemo-radiation in women lead to a decline in their mortality must be encouraged.

Lung cancer

Treatment depends on specific cancer type and metastases. Targeted therapy for advanced type and other palliative care, surgery, chemotherapy and radiation are common treatments recommended (D'Antonio P.A,Gori,B 2014 and Ferrel, B .et.al., 2011 and Homl, Lovly CM Johnson 2015). Lobectomy for early stage NSCL, wedge resection called lobar excision with radioactive iodine brachyptery at wedge margins to reduce recurrence, rarely pneumonectomy (complete lung removal) may be recommended (Renzik,. S.L. and Smythe,W.R.,2015).Video assisted thoracosurgery and lobectomy respectively can be recommended (Alam,N and Floris R.M, 2007). Prophylactic cranial irradiation to prevent or reduce metastasis from lung to brain is a kind of radiotherapy (Paumier,A.et.al.,2011). Palliative radiotherapy to control spread of NSLC in patients use smaller doses of radiation (Fairchild A, 2008). Chemotherapy using cisplatin and ectoposide for small cell lung cancer prove beneficial (Murray, N and Turrisi, 2006).

Rectal cancer

Resectal cancer of rectum need surgery, depends on location and size of tumor can be done alone or in combination either with other neoadjunctive and adjunctive therapies (Mccourt, M. et.al.,2009).Local removal, sphincter sparing procedures (low, very low ,or ultra low anterior), resection and abdominal resection depending on need of the malignancy can be recommended (Monson,J.R.et.al.,2013). For the above mentioned cancers total mesorectal excision (TME) technique gives better survival rates of patients (Heald, R.J.and Quirke, P.et.al.,1993). Open surgery is not favourable instead minimal invasive rectum surgery is a better option (Lujan, J.et.al.,2009).The laparoscopic approach also works well for women and men. But open and laparoscopic approach result in increased risk of sexual malfunction in men (Quh H.et.al.,2002). Neoadjuvant treatment for locally advanced rectal cancer of mid and distal parts are recommended, prior to this short course radiotherapy are required, after this chemotherapeutic regimens like includes infusional or bolus fluorouracil alone (Saver, R.et.al.,2004), leucovoril plus fluorouracil (Gerard J.P.et.al.,2006),oral drugs capecitabine (Graven,I.et.al.,2007), oxaliplatin (Aschele,C.et.al.,2011), irinotecan (Navarr, M.et.al., 2006), bevacizumab (Crane C.H.et.al.,2010), cetuximab (Dewdney, A.et.al.,2012) and panitumumab (Helbing D.et.al.,2013) are recommended for neoadjuvant treatment. Adjuvant therapy in stage III or high risk stage II after surgery use chemoradiotherapy to effectively decline local recurrence and death due to rectal cancer (Monson,J.R..et.al.,2013). Other regimes for adjuvant chemotherapy are bolus or infusion of fluorouracil (Smalley, S.R.et.al.,2005). The de Gramont is short term infusion of fluorouracil and leucovorin. (Andre,T.et.al.,2007), capecitabene plus oxaliplatin to treat cancer (an oral active fluoropyrimidines) (Hofheinz R.D.2012), oxaleplatin based FOLFOX (infusional fluorouracil and leucovorin plus oxaliplatin) and CAPOX (capecitabine plus oxaliplatin). For locally recurrent rectal cancer complete resection of tumor with negative margins and extensive pelvic exenteration like partial sacrectomy help in

long term survival of patients(Yang TX, Morris DL, Chua TC, 2013; Tepper JE, O'Connell M, Hollis D,Niedzwiecki D, Cooke E, Mayer R.J, et al. 2003; Henry L.R, Sigurdson E, Ross E.A, Lee J.S, Watson J.C, Cheng J.D, et al 2007; Bosman SJ, Vermeer T.A, Dudink RL, deHingh IH, Nieuwenhuijzen GA, Rutten HJ 2007; Ferenschild F.T, Vermaas M, Verhoef C,Dwarkasing RS, Eggermont AM, de Wilt J.H. 2009; Bhangu A, Brown G, Akmal M, Tekkis P 2012; Colibaseanu DT, Mathis K.L, Abdelsattar ZM, Larson DW, Haddock M.G, Dozois E.J 2013 and Alberda W.J, Verhoef C, Nuyttens J.J, Rothbarth J, Van Meerten E, de Wilt J.H, et.al., 2014) .

Urinary Bladder

Initial treatment or management depends on the extent of pathology when TURBT is done to define the tumor using node-metastatsis classification system for urinary bladder cancer. TURBT treatment for non muscle invasive diseases is followed by single dose regimen either of intravesical immunotherapy incorporating BCG or intravesical chemotherapy in case of extensive development or recurrence of the tumor. Treatment by radical cystectomy and prolonged lymphadenectomy, ahead of this cisplastin neoadjuvant therapy must be used (Bellmunt, J.et.al.,2014 and Chang, S.S.et.al.,2017). Mitomycin, epirubicin (ellence), or doxorubicin (adriamycin) are chemotherapeutics, both alone BCG or chemotherapy are recommended on risk of cancer progression or recurrence (Bellmint, J.et.al.,2014 and Clark, P.E.et.al,2013). Non metastastatic muscle invasive bladder carcinoma has aggressive nature required radical cystectomy involving bilateral pelvic lymphadenectomy and cisplastin neoadjuvant chemotherapy (Chang, S.S.et.al.,2017). Chemotherapy for metastatic diseases or unresectable bladder cancer patients involves either use of gemcitabine with cisplatin, median survival time is 14 months (Chang,S.S.et.al.,2017). Adjuvant chemotherapy with combination gemcitabine and cisplatin appear less toxic in subjects exhibiting unresectable, locally progressed or metastatic transitional cell bladder carcinoma as inferred by Shelley, M.et.al.,2011 and Shelley, M.D. et.al.,2011 respectively. Cystectomy, partial cystectomy or radiation appear favourable for non urothelial bladder cancer patients but chemotherapy is not recommended (Clark,P.E.et.al.,2013). Chemoradiotherapy or palliative TURBT and supportive care in case of recurrent or persistent diseases when invasive (T2 or greater) are useful (Clark,R.E.et.al.,2013) .

Blood cancer

Treatment depends on type of leukaemia health age and stage, chemotherapy is administered stage wise. Induction stage all abnormal cells are killed, abnormal cells are observed in blood tests are destroyed in consolidation stage. Final stage for ALL called maintenance stage to contain regrowth of any leukaemia cells prove beneficial. Direct drug injection called intrathecal chemotherapy for leukaemia metastatic in brain and spinal cord is effective. Strong radiation dose to start remission of cancer cells also transplantation healthy stems cells of donor to recipient patients is recommended. Surgery in case of skin or extra nodal tumors of lymphoma of spleen and abdomen is beneficial. Chemotherapy employing drugs either to kill or to suppress redeveloped abnormal cells and new batches of

lymphocytes appear preferable, drug dose is administered in cycle so that fresh healthy WBC'S are generated. Seven component incorporating BEACOPP, ABVD and MOPP are beneficial to treat Hodgkin lymphoma, CHOP cyclophosphamide, doxorubicin, vincristine and prednisone is common treatment for non Hodgkin lymphoma, variations of CHOP depends on type and stage of disease. Antibiotic to induce antibodies to assist chemotherapy is immunotherapy. Real time imaging coupled to radiation therapy eliminate tumors. In some cases stem cell transplantation is done. Similarly, to treat myeloma, biphosphates a chemotherapeutic agent to maintain health of the bones is recommended. Steroids, bone marrow transplantation surgery and radiation therapy are other treatments. If patients self-stem cells is used it is autologous bone marrow transplantation. Second type is allogenic bone marrow transplant it utilizes donor stem cells due to possibilities of cure in the long term treatment (Mathers,et,al.,2000; Ross,J.A.et.al.,2002; Wiernik,P.H.2000; Robinetter,M.S.et.al.,2001; Stass, Sanford A; Schumacher, Harold R. Rock, William R. (2000); Leonard, Barry (1998); Roman E, Smith AG.2001; Boffetta PI 2011, Grulich AE, van Leeuwen MT, Falster MO, et al.,2007; Dal Maso L, Franceschi S.2006 and Nath A, Agarwal R, Malhotra P, Varma S, 2010).

Thyroid cancer

Surgical resection therapy of nodular thyroid tumors help to obtain more tissue for diagnosis to totally cure and prevent mortality. Later if needed adjuvant therapy to prevent recurrence may be recommended (Grubbs,K.L.,2019). The quality of surgery by a highly experienced surgeon eliminate complication rates post removal of thyroid tumor of high risk patients possessing clinical disease N1 which later may invade the laryngeal nerve to cause recurrence of malignancy (Sosa, J.A.et.al.,1988;Loyo, M.et.al.,2013; Gowin,C.G.et.al.,2010) and Stavrakis,AI.et.al., 2007).In case of high risk thyroid cancer thyroidectomy completely for papillary tumor size more than 1 cm is still best option (Haungen, B.R.et.al.,2016). ATA recommendation 36, imply that complete thyroidectomy achieve complete resection of the diseases and central nodes present in the central compartment level V1 of the neck get eliminated. Thyroidectomy not involving prophylactic dissection of the central compartment in patients suffering from papillary tumors (T1 or T2),non-invasive possessing clinically negative lymph nodes (cNo) and for most follicular cancers is appropriate according to ATA recommendation 36. Biopsy result showing metastatic lateral cervical lymphadenophathy in the lateral compartment require therapeutic dissection of the lymph nodes (ATA recommendation 37).ATA recommendation 38 propose for management of low risk papillary and follicular tumor thyroid lobectomy alone. In selected cases ablation with radioactive iodine usually burn the remaining lobe of the thyroid tumor (Haungen, B.R.et.al.,2016 and Pak K. et.al., 2015). Surgical palliative therapy for anaplastic carcinoma appear preferable (Thomas, R.M.et.al.,2012; Grubbs,K.L.2019 and Smallridge, R.K.and Copland ,J.A.,2010). If the tumors is intrathyroid anaplastic type that has been diagnosed at an early stage survival can be achieved by total thyroidectomy alongwith central compartment lymphadenectomy (Smallridge,R.C.et.al.,2009; Smallridge and Copland, J,A.,2010 and Tana, R.K.et.al.,1995).Aggressive nature of anaplastic carcinoma of thyroid limit survival of patients and resection of adjacent organ using surgery appear non-preferable due to complication (Tana,

R.K.et.al.,1995). Multinodal treatments such as radiation, chemotherapy and immunotherapy may be recommended for resection, if diseases occur in organ around thyroid in selected patients only (Carcangiu M.L.,et.al.,1985). Application of chemotherapy treatment has a limited scope for differentiated thyroid cancers and ATA doesn't recommend commonly use of systematic adjuvant therapy, beyond radioactive iodine and TSH suppressive therapy respectively (ATA recommendation 61 and Haungen, B.R.et.al.,2015). Non-availability of an effective treatment regimen allow frequently combination of chemotherapy with radiotherapy and surgery in patients diseased from anaplastic carcinoma of thyroid gland as recommended (Smallridge R.C.et.al.,2012; Pierre,J.P.et.al.,2002 and Orita,Y.et.al.,2011). Bone metastases treatment require intravenous bisphosphonate administration (Orita,Y.et.al.,2011). In retrospective cohort studies carried out for decades for thyroid carcinoma patients, multimodal adjuvant therapy if used may prolong survival and decrease recurrence also (Thomas, R.M,et.al.,2012; Grubbs,K.L, et.al.,2019 ; Jonklass,J.et.at.,2006 and Jonklass,J.et.al., 2010 and Creach K.M.et.at.,2012). For current understanding of the clinical presentation, diagnostic workshop and management of thyroid cancer focussed on evidence- dependent and personalised medicine a review paper on thyroid cancer available may be useful (Rodrigo,A. et.al.,2019).

DISCUSSION

Skin cancer

Basal cell carcinoma (BCC), Squamous cell carcinoma (Scc) both belong to non melanoma skin cancer (MMSC) and the other malignant melanoma are most common types of skin cancers (M.C.F. Simoes.et.al.,2015). In general skin surgery depending on the type, size location, etc .MM metastasis occur in 20% patients, the removed sentinel node is examined histologically to know extent of pathogenesis on which treatment depends (R.Dummer.et.al.,2015). Surgery for various skin tumors was described by researchers (M.M.Chen et.al.,2011; V. Samarsinghe and V.Madan 2012 and NICE, Melanoma,2015).Basic therapy with pharmacological drugs, topical application of 5-flurouracil for Bowen's diseases (NMSc) and imiquimod plus 5-flurouracil regulate some key cell receptors and immune response. Similarly, dacarbazine, temozolomide or carboplatin paclitaxel are used (M.C.F.Simoes et.al.,2015). Patients with advanced or metastatic BCC, some had Grolin syndrome were treated with vismodegerb an oral selective inhibitor of hedgehog signal pathways (HPI), binds to transmembrane smooth protein produced by SMO gene, it inhibits HMI pathway and tumorgrowth (A. Sekulic et.at.,2012).Target therapy with selective inhibitors for mutated genes (BRAF and MEK)whose kinases cause uncontrolled growth of tumor is recommended (B.P.S Singh and A.K.S.Salma,2016). Other treatment regimes are KIT, immunotherapy using interleukin-2, interferon cytotoxic T-lymphocyte associated protein programmed death and adaptive cell immunotherapy (ACT). According to Kristjan orthaber.et.al.,2016 nanotechnology and chemotherapy which consider target specificity drug release control, and monitoring aimed at decreasing side effects , cheaper ,efficient chemotherapy may help to increase life expectancy of patients of skin cancer across the world. According to Amer Bin Al-Zouz.et.al.,(2016) skin cancer is the commonest with nearly similar pattern in Southern Governorates of Yemen, alike the international

figures with low occurrence of MSC and necessitates for comprehensive health care and epidemiological studies to know risk factors in Yemen and to enforce a public strategy for prevention and control.

Breast cancer

Awareness of risk factors and BSE practice in women population of Varanasi is very low in India. The same is better in Delhi, Mumbai, Himachal Pradesh, and Turkey and Nigeria as revealed by Shatabdi, P.et.al.,2016. Doctors and health worker have important role in promoting early diagnosis of breast cancer. According to Nardia Harbeck.et.at.,(2019) the underlying causes of breast cancer include activation of estrogens and progesterone receptors, human epidermal growth factor receptor 2 (HER2 encoded by ERBB2) and/or mutation of BRCA are molecular events. Treatment depends according to molecular subtypes and its management is interdisciplinary, access to therapeutic advances appears to be a global challenge particularly for advanced breast cancer

Vagina cancer

Stock,R.G.et.al.,1995 studied 100 cases (1962-1992) from review data in patients with stage I and II disease (p value less than 0.001) and concluded radiation therapy and surgery proved favourable prognostic factor for disease free life in vagina cancer treatment, but in stage I cases radiation therapy alone or radiation therapy with surgery (HR 1.51 and 1.33 respectively) resulted in lowest survival. Davis,K.P.et.al.,1991 and Rubin S.C. et.al.,1985 showed primary surgery with radical extenerative approach in 40-50% cases gave excellent results. Up-front surgery data suggested high survival,but use of radical surgery declined survival probably due to more use of radiation surgery. But in case of positive margins or pelvic nodal metastases at the time of surgery required additional adjuvant radiation therapy. SEER database program based on large population of women from many geographic regions have calculated that lower socio-economic group exhibit higher incidence rates of vaginal carcinoma among many one of the risk factor is oncogenic HPV infection (Khan,M.J.et.al.,2008 and NCI 1999),SEER data recorded a decline in mortality occurring in patients diagnosed after 2000; due to chemo-radiation therapy ,a 17% decrease in comparison to women from 1990-1994 (Chirag,A.S.et.al.,2009). Women with vaginal melanoma in comparison to squamous cell carcinoma according to a multivariate adjusted model depicted a 1.51 fold (95% CI: 1.07-2.41) elevated risk of death. Trend of survival rate stage wise calculated was 84% (I), 75% (II) and 57% (III & IV) respectively.

Lung cancer

Lung cancer death recorded was 1.6 million across the world, no clear relationship between higher consumption of vegetables and fruits could be established although a reduce risk was found. Decline in lung cancer doesn't occur due to long term vitamin (A,D,E) therapy. Survival of patients with long term smoking habit depends

on screening and they belong to age range of 55-80 years. In U.S.A. 16.18% survive for at least 5 years(2005-2009) whereas in England it is less than 10% and is co-related to type of lung cancer and management practices (Murtaza,M.et.al.,2016). This also depends on diagnosis (Surveillance, Epidemiology and End Results program, NCI, 2016), but survival recorded appear very less in developing world (Majumdar and Madan, 2009). The chemotherapeutic drugs may prevent metasis to bone (NCI,2012).As discussed above in subjects having a smoking history for not more than 15 years(30 pack years)who belong to 55-80 age group must be screened every year employing low dose computed tomography as recommended by U.S.A Preventive services task force (Mayer,V.A.2014). A word of precaution for CT screening appear biased due to high rate of falsely positive tests calling for unneeded treatment (Aberle,D.R.et.al.,2013).Advantage of CT screening reduces death by an absolute amount of 0.3% (relative amount of 20%) (Jacklitsch, M.T.et.al.,2012).

Rectal cancer

Both resectable colon and liver metastases in one stage may be preferred but is a complex approach (Ruers,T.J. and Hagendoorn,J.,2012). One can use a multimodality plan like preoperative neoadjuvant chemoradiotherapy, multivisceral resection involving either intraoperative radiotherapy or not followed by post operative adjuvant chemotherapy for unresectable rectal cancers (Monson,J.R.et.al.,2013; Nelson,H,et,al.,2001; Hoffmann,M.et.al.,2012 and Lobez M.J,2001).Multivisceral resections like total pelvic exonerations or its modifications allow proper control and survival (Nakafusa,Y,2004; Lehner,T.et.al.,2000; Luna-Perez,P.et.al.,2002; and Govindrajan A.et.al.,2006).In males excision of rectum, anus, lower ureters, urinary bladder and prostate while in females, uterus, ovaries and vagina are excised in total pelvic exteneration resection (Rodriguwz-Bigas, M.A.et.al.,1996 and Pawlik,T.M.et.al., 2006). In women excision of rectum, sigmoid colon, inner reproductive organs, draining lymph nodes and pelvic peritoneum during posterior pelvic exenteration in case where rectal tumor adherent or invaded to the uterus and vagina appear good therapy approach (Bannura,G.C.et.al.,2006; Lohsiriwat, V and Lohsiriwat,D,2008 and Puntamberkar,S.P.et.al.,2013).In another option preferred, a supralevator pelvic exentenration remove enblock all affected organs as in TPE, preserving an adequate posterior margin of rectum, and also the perineal floor facilitating colorectal anastomoses operation (Dias,A.R. and Nahas,S.C,2013 and Moutardier,V.e.t.al.,2003). A local recurrence rate (4.8-6.1%), a complication rate (37-100%), and a perioperative mortality rate (0-25%) was recorded in a systematic review study on 1049 patients who underwent multivisceral resection for their rectal cancers (Yang,T.X.et.al.,2013). Further no appealing data on the use of adjuvant chemotherapy for treatment of locally recurrent rectal cancer is available. In asymptomatic patients initial treatment with chemotherapy may be preferred (Sarela,A and O,Riodian, D.S,2010), and also in case of patients with post resection of rectal cancer with metastasis liver disease (Kopetz,S.et.al.,2009; O'Connell,J.B. et.al.,2004; Sanoff,H.K.et.al.,2008 and Grothey A. and Sargent,D. 2005). Selenium, tellurium and sulphur are group 6 chalcogenic elements. Selenium a trace element, rarely found in elemental form comprise 0.00008% of the earth's crust. High level 100mg Se kg^{-1} has been measured in soils of USA, Ireland and

India (Lenz M.,Lans P.N.L.,2009). Vit E and sulphur-containing amino acid (selenocystine) carry out various functions in the metabolism of animals, it is present in glutathione peroxidise (GSH-Px) by 2010 mostly enzymes selenoproteins about 30 were identified (Hefnawi, Tortora-Perez, 2010) and 10 from these have biological roles. Mammal body contain 4-isoforms of enzymes such as classic GSH-Px (cytoplasmic peroxidase) ,plasma GSH-Px (an extracellular enzyme),gastrointestinal GSH-Px and phospholipid-hydroperoxide GSH-Px (Arthur,J.R,2000).Many selenoproteins identified include W in rat muscle (Whanger,P.D,2000),spleen, brain,etc; selenoprotien K an antioxidant in cardiomyocetes (Lu,C.et.al.,2006); the neuroprotective selenoprotein M and H(Zhang, S.et.al.,2010),selenoprotien N aid in muscle contractions (Lescure,A.et.al.,2009);T,O and I are selenoproteins whose functions are less known (Lopez-Heres,et.al.,2011).Deficiency of selenoprotein S lead to colorectal-cancer in human (Sutherland,A.et.al.,2010) because in blood of cancer patients Se occur at low levels as selenium itself occur in less amount in soil, selenium posses antineoplastic activity (Sanz-Alaejos,et.al.,2000).Many functions has been assigned to selenium, few may be enumerated:stimulates antineoplastic metabolites secretion; blocks angiogenesis and promotes apoptosis of cancer cells (Combs,G.F and Gray W.F.1998). The cytotoxic action of NK cells destroy several animal tumor growth, this proliferation may be either stimulated or inhibited by dose of selenium used (Koller,L.D.et.al., 1986).Most animal species exihibit susceptibility to a single dose of Se (1 to 6 mg/kg body weight) according to the research work of Hogue,1970 and Whanger,P.et.al.,1996. Acute selenosis occur due to ingestion of 20-30 ppm of Se whereas sub acute/chronic toxicity result from ingestion of less than 3-5ppm of selenium (Panter,James,1990 and Nuttal,2006).Evidence exist that selenium suppress transcription factors involved in control of mitosis of cell, the anti-neo-plastic role of Se is due to antioxidant effect exercised through the redox-route(Spyrou,G.et.al.,1995).The authors of this review paper suggest analysis and screening of cow-urine distillates. If selenium is present it can be to design selenium nanostructure for therapy of colo-rectal and other cancer.

Urinary Bladder

Percentage wise occurrence of the most common histological types of bladder cancer are urothelial carcinoma (97.65), adenocarcinoma (1.17) and carcinosarcoma (1.17) and agree with earlier similar reports of various researchers,but doesn't conform to a study done in Nigeria by Mandong,B.M.et.al.,(2000) in which squamous cell carcinoma accounted for great proportion (42.3%) and may be due to endemic schistosomal infection. In India bladder cancer is the 9th most common cancer found in 3.9% of all cancer cases (Kurkure,A.P.2001). Among TURBT urothelial bladder cancer cases, 48.61% were high grade but among cystectomy majority were high grade 81.8%. Muscularis propria was observed in 56.76% of TURBT specimens only, out of which 19.05% suffered from pTa,30.95%PT1 and 56% cases greater than or equal to pT2 stage, data pertain to 85 urinary bladder carcinoma specimens examined in the pathological department of GMC, Jammu during 2008 to 2011 (Manse Sharma.et.al., 2017).

Blood cancer

Advanced treatment with chemotherapeutic agent give positive result in advanced cancers such as acute lymphoblastic and acute myelogenous leukaemia, Hodgkin's and Non-Hodgkin's lymphoma, etc. Acute leukaemia, Burkitt's lymphoma, Wilm's tumor are cured by chemotherapy not always but progression free and overall survival has been known (Manual,A.et.al.,2011, cancers). Remission means no symptoms of cancer, nearly 1 million people survived with or in remission from blood cancer in U.S.A. the reason being many improvements in therapy.

Leukaemia remission occurred when treated with methotrexate (1948), particularly in children Aminopterin and amethopterin are folate antagonists that paved way for methotrexate synthesis (Farber,S.et.al.,1948).Leukaemia treatment with 6-thioquinine and 6-mercaptopurine was done (Hitchlings,G.H.and Elion,G.B.,1954). Treatment of leukaemia and Hodgkin's disease employed alkaloid from vinca, ibenzmethyzin (procarbazine) which proved better for the patients (Johnson,T.S.et.al.,1963 and Devita,V.T.et.al.,1966). According to MOMP protocol advanced Hodgkin's disease could be treated with combined nitrogen mustard and vincristine, methotrexate and prednisone (De,Vita,V.T.et.al.,1965 and Maxley,J.H. et.al.,1967) but MODP protocol used chemotherapeutic procarbazine without methotrexate (Devita,V.T.and Serpick,A..,1967 and 1970).In case of diffuse large B-cell lymphoma above treatment, but for advanced B-cell lymphoma protocol C-MOPD utilized cyclophosphamide in place of mustard gas (Devita,V.T.et.al.,1975).

Thyroid cancer

Women all over the world suffer more than men from thyroid nodule their share is 5% although they get sufficient iodine from food and water (Vander, J.B.et.al.,1968). Of all types of thyroid carcinoma, anaplastic tumor is rare and is difficult to diagnose, whereas slow differentiating malignancies exhibit poor prognosis. Of the total cases diagnosed between 2010 to 2014, 89.4% had papillar thyroid cancer other types were of low occurrence (Howlader, N.et.al.,2017). Based on 2016. SEER data depending on age, sex, radiation exposure history, family history, etc., thyroid nodule detection to eliminate it appear to be clinically important ,it accounts 7% to 15% of thyroid cancer.(Hagedus,L., 2004 and Mandel, S.J.,2004). Women and younger people suffer less aggressive tumor types (Howlader N.et.al.,2017). Serum marker fine needle aspiration biopsy (FNAB), molecular tests, more use of high resolution neck and thyroid ultrasound scanning, help in detection and diagnosis and the proper management to treat with medicine and surgery has become debatable. Great controversy has been generated regarding differentiated thyroid cancer on the type of lobectomy versus thyroidectomy, the application of central prophylactic versus therapeutic compartment lymphadenctomy surgery, and use of adjuvant medical treatment. More research will clarify the best treatment to be employed to treat and prevent recurrence of thyroid cancers and increase their survival rate for the rest of the life, limitation of chemotherapy to differentiated thyroid cancer based on (ATA recommendation 61 and Hougen B.R.et.al.,2015).Combination treatment involving chemotherapy, radiotherapy and surgery recommendation of ATA seem

appropriate (Smallridge R.C.et.al.,2012; Purre,J.P. et.al.,2002 and Orita,Y.et.al., 2011) . Data pertaining many decadal use of multimodal adjuvant therapy prolong survival and decline of recurrence of thyroid cancer according to Thomas,et.al.,2012; Grubbs.et.al.,2010; Sacks et.al.,1966-2008 ; Sawka, et.al.,2008 and Creach, et.al., 2012). Personalized medicine to differentiated type and other thyroid carcinoma consider re-appraisal of the standard one size fit approach currently received by cancer morbid patients (Rodrigo,A.et.al.,2019).

CONCLUSION

This review paper has attempted to include some aspects of cancers only, due to limitations. Cancer is a challenge for biologist, drug designer, therapist, etc. It's an eluding stubborn disease make humans believe that it can be eradicated or cured totally to free a patient to lead ones remaining life, without fear of its recurrence. Human race worldwide are at a cross road, but has belief on science to find a permanent cure.

Until now humans have utilized all knowledge expertise and technologies to evolve various diagnostic methods to diagnose, categorize type, metases and stage (early or advanced) about various cancers. For diagnosis various modern tools, techniques, test parameters at cell, tissue, organ and organ system levels has been meticulously employed with a hope to suggest latest, appropriate and better therapies depending on the type, stage and severity of cancer. Radiation therapy and partial or total surgery, chemotherapy did well in isolated cases of cancer and relies on the incidence of a cancer in various geographical regions of the globe. Other considerations taken into account include age, race, health status, life style, hormones, family history, genetic and environmental factors, etc., to treat solid tumors of organs, blood associated cancers and metastases cancer. Chemotherapeutic modern drugs when used as monotherapy or combination therapy for treatment are effective but toxic. Radiotherapy often kills other healthy cells and tissues, despite proper dose of radiation given to the patients and calls for precautionary measures. Radiotherapy, surgery and chemotherapy alone or a combination of any of these are used to manage treatment of patients. Cancer patients need an ideal proven cure. To reduce drug toxicity side effects and increase efficiency of treatment of tumor cell and tissue now gene therapy and nanotechnology structures are also available.

The present review paper include self administered questionnaire of review papers of other authors to collect information from cancer department in hospitals. Statistics available from population based cancer registries data provide vast information on demography, epidemiology, risk factors, screening, diagnostic methods, treatment protocol, mortality rates, survival rates, recurrence, etc. These

data were used to write this research paper. Unnatural and unhealthy life style will continue to escalate incidence of cancers throughout the world. Living a quality life is the need of the hour and is directly or indirectly related with sustained development and conservation of environment .

Ayurveda system of medicine is a natural way to treat cancer, it uses various parts of the plants for treatment. Cow urine distillate is also used for treatment of various diseases and may have role in cancer therapy. The authors declare no conflicts of interest. The authors of this review paper suggest analysis and screening of cow-urine distillates. If selenium is present in cow urine and isolated and purified it can be used to design selenium nanostructure for therapy of colo-rectal and other cancer. Animals suffering from selenium toxicity, tissue, urine and blood particularly from be used to make SeNPs for this microbes can be used it is green technology approach to treat cancer.

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