

Environmental Factors and Terminal Cancer Development- Review Article

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Abstract:- The cancerous method is a result of disturbed cell performance. This can be due to excess genetic and epigenetic changes inside the cell, expressed within the accumulation of body or molecular aberrations, that results in genetic instability. It's tough to assess the validity of individual factors which can cause a diseased condition; however, it can be suggested that interaction of various risk factors has the biggest contribution to cancer development and metastasis. Environmental and individual factors, together with genetic makeup contribute to the development of cancer. Medical research on malignant tumors has focused on the effects of environmental and genetic factors on cancer cases occurring and death rate. According to the information available, 80–90% of malignant tumors are a result of external environmental factors i.e. Carcinogens. Medical studies have indicated that the most factors leading to metastasis of cancer among humans are due to environmental factors which develop due to human activities. The studies show that smoking, excessive alcohol consumption and diet play an important role in metastasis of preexisting tumors. According to WHO, there might be ten million deaths by the end of 2020, out of which 7–8 million will be in developing countries and 2–3 million in developed countries. The aim of this study was to accumulate knowledge regarding the risk factors leading to metastasis of tumor and providing them with the most recent results.

Keywords:- Cancer, Metastasis, Environmental factors, Biological Infection and metastasis, Physical factors, Chemical factors.

I. INTRODUCTION

Cancer leads to approx. 90,000 deaths and 12,000 new cases every year within the world. In a time-span of 40 years, total death occurring in women increased by a margin of two-fold and increased by three folds in men. Morbidity and death depend on the exposure to various risk factors. According to WHO, cancer kills more people when compared to cardiovascular diseases. It is estimated that there will be 20 million new cases of cancer before 2025, mainly in developing and underdeveloped countries. Cancer is the process which indicates altered cell functioning. This is due to accumulation of genetic and epigenetic changes at cellular level which leads to genetic instability. It is also estimated from the data that risk factors have the biggest contribution to cancer development. Environmental, exogenous and endogenous factors, as

factors for a specific individual, including genetic makeup and interaction between environmental factors and genetic predisposition, may lead to the development of cancer. As per the data provided by UN agency after analysis, 35% of deaths caused by cancer worldwide are due to exposure to various risk factors due to human lifestyle such as smoking and alcohol consumption, in countries with low, medium and high incomes, infections, parasites, exposure to ultraviolet light and tanning devices that emit ultraviolet radiation, tobacco smoking, dietary factors, hormone replacement and exposure to ionizing radiations.

➤ Objective

Proper organization of knowledge involving the risk factors of malignant tumors and supplementing them with the latest research results.

II. MATERIALS & METHOD

To verify the information regarding the topic PubMed search was conducted which included articles between 2010–2018. Amalgamation of the above key words were used: 'cancer risk factors', 'environmental factors in relation with cancer', 'physical factors causing cancer', 'chemical factors', 'biological factors leading to cancer', 'infections causing cancer and metastasis' (key words: cancer, risk factors, environmental factors leading to cancer) to verify the information obtained. The complete text of every paper was considered, with specific focus on papers having information regarding environmental risk factors for cancer. The main aim for this activity was to provide readers with the knowledge of relevant articles allowing the reader to get updated with the current literature and interpret and conclude.

III. RESULTS

➤ Physical factors

• Exposure to electromagnetic fields

According to the studies conducted by Wertheimer and Leeper in 1971, it was observed that the 'American kids living in homes with more than average intensity of magnetic fields' had a higher risk of developing leukemia in their lifetime. In 1998 experts from America National Institute of Environmental Health Science suggested that there are very limited proofs which suggest that exposure to electromagnetic fields is carcinogenic. The World Health Organization [WHO] suggested that electromagnetic fields of 50/60 can lead to development of a tumor. Medical studies indicated a relationship between exposure to a low frequency magnetic field (0–300 Hz) and risk of breast

cancer. It was observed from a study that there was a 6.5-fold accumulated risk of breast cancer among technicians working in a telecommunication company in New York. Analysis suggests that the kids living in conditions wherever the magnetic field strength is more than 0.4 (4 mG), the chances of developing leukemia are twice when compared with the normal conditions, however no studies have been done yet which can support the above analysis.

- *Ionizing radiation*

One of the frequently mentioned carcinogens is ionising radiation which can lead to formation of tumors in all the organs which are susceptible for developing cancer. The above fact was supported by the reports that were made based on a study conducted on young children which were alive after the nuclear attack on Hiroshima and Nagasaki. They were more susceptible in developing thyroid cancer and leukemia during their lifetime. Studies indicated that when diagnostic radiology was performed on pregnant ladies, the child became more prone to developing childhood cancer. The risk was directly proportional to radiation dose and range of exposures. Reports made from the literature review suggested that 2-3% of all cancer cases occurring worldwide were a result of exposure to ionizing radiation, and young people exposed to X-rays developed liver disease, bone cancer and leukemia in their lifetime. Studies suggested that when an already existing tumor was treated with radiotherapy increased the chances of developing secondary cancers. Brain tumor therapy increased the risk of developing gliomas and glial tumors, while women having undergone radiotherapy for treating chest tumors were more prone to developing breast cancer. The studies show that the women exposed to the radiation had an increased chance of developing breast cancer after 8 years of exposure, and cancer usually develops before the age of 40. Radiation may promote tumorous growth if the radiation exposure is more and it penetrates thyroid gland (thyroid carcinoma), chest (lung cancer) and bladder (malignant bladder tumors).

- *Ultraviolet radiation*

One of the most common environmental factors having harmful properties and adversely affects the skin is ultraviolet (UV) radiation. More amount of sunlight exposure can lead early-onset effects, causing erythema or sunburn, with other symptoms occurring in later stages such as symptoms of accelerated skin aging and post-solar carcinogenesis due to prolonged exposures. Studies indicate that prolonged exposure to UV radiation can severely increase the risk of pigmentary and non-pigmentary skin cancers – melanoma and squamous skin carcinoma. 5% of the UV radiation which reaches the surface of the earth is UVB (ultraviolet shortwave) having wavelength of 280-315 nm. DNA damage due to exposure to radiation causes mutation which can damage the pathways leading to apoptosis of damaged cells and promotes growth of cancerous cells. The mechanism responsible for this is the 'formation of pyrimidine dimers – thymidine dimers or thymine dimers with cytosine and 6,4-photoproducts which leads to the damage in DNA of upper epidermal cells. UVB radiation causes direct mutagenic effect and

immunosuppression in skin and it is nearly 1000 times more mutagenic compared to UVA (ultraviolet long wave radiation) while direct cellular DNA damage is caused by UVA. Solarium also shows carcinogenic effects. The tanning lamps used in solarium emits UVA radiation. The dose to which the skin is exposed in solarium is quite more when compared to the exposure to sunlight to which the skin is vulnerable and may create problems which may interfere with the defense mechanism. Scientific studies have shown that prolonged exposure to solarium leads to increased risk of melanoma and squamous skin carcinoma. In 2009 the International Agency for Research on Cancer recognized the radiation emitted by solarium lamps as a carcinogenic factor after conducting numerous studies which may aid in development of skin cancers with some other carcinogens including arsenic compounds, coal tar and soot. Use of solarium is common among young people due to social media trends of fashion involving tanned skin.

- *Chemical factors*

- *Tobacco smoking*

Around the world, tobacco has been one of the most important factors among the factors responsible for causing cancer as it leads to the death of 6 million individuals annually. As per the reports given by WHO, tobacco items involving usage of tobacco leaves which are used for smoking and inhaling have various types of carcinogens in it. Examples of carcinogenic elements present are nitrosamines [TSNA], N-nitrosornicotine [NNN], 4-(methylnitrosamino)- 1-(3-pyridyl)- 1-butanone [NNK]). This can also lead to development of cancer-causing agents such as aldehydes which includes acetaldehyde and formaldehyde, and TSNA). According to the Universal Office for Exploration on Malignancy (IARC), around 72 parts of tobacco smoke are carcinogenic to lab animals when experimented upon and 16 of them are proved to be carcinogenic for people. The most effective carcinogens are: benzene, dimethylnitrosamine, ethylmethylitrosamine, diethylnitrosamine, nitrosopyrrolidine, hydrazine and vinyl chloride. Some of the cocarcinogens are also found which itself does not show cancerous properties but may enhance cancerous growth when carcinogens are present. Examples of cocarcinogens are formaldehyde catechol and naphthalenes along with pyrenes. Cigarette smoking is considered to be very dangerous and is one of the main reasons for malignancy. American Disease Society suggested that tobacco smoking causes 16 different kinds of cancers. IARC in one of the reports mentioned that smoking causes tumor growth in larynx, throat, bronchitis, pancreas, kidney, lung, digestive organ, nasal hole and paranasal sinuses, stomach, pancreas, liver, bladder, and cervix leading to development of cancer. The studies also prove that smoking can cause malignant growth and leukemia in the younger population involved in active smoking. The smoke released from the burning tip of a cigarette when inhaled is proved to be multiple times more harmful known as passive smoking. When a non-smoker enters the room where cigarette smoke is present it is believed that the person inhales nitrosamines, benzene and smelling salts in more proportion compared to a dynamic cigarette smoker. Active smoking enhances the

development of various types of cancers including lung cancer, leukemia, larynx, throat, brain, bladder, anus and stomach (American Malignant growth Society Report). It is proved to be harmful to stay in a room which was filled with cigarette smoke as the residue of smoke can reside on the furniture for a longer period of time. Various studies were conducted and reports were made to prove the dangers of active and passive smoking and their role in developing cancer. A study conducted by Assembled Realm suggested the possibility of tumor formation in the offspring of the pregnant lady who smoked at least 6 or more cigarettes a day, was 2.55 (96% CI 1.22–6.1). A study was done in Sweden which showed that the children of the women who smoked during pregnancy developed leukemia at a very early age. Medical research conducted by Boffetta et al suggested absolute harm in offspring of ladies who smoked during pregnancy was 1.2 (96% CI 1.4–1.20), the relative hazard for development of haematopoietic and lymphoid tissues tumor was 1.05 (96% CI 0.8–1.1), for various lymphomas and non-Hodgkin's lymphoma it was 1.2 (96% CI 0.8–1.4), for tumor growth in central nervous system it was 1.03 (96% CI 0.94–1.16), and for leukaemias it was 1.2 (96% CI 0.7–1.4). Around 400 deaths as a result of malignant lung tumor arising due to passive smoking was indicated from a study conducted by Becher and Wahrendorf in 1994. The most recent results of the studies conducted by the US Division of Wellbeing and Human Administrations in 2006, and studies by Kim et al. in 2014, show that the chances' of developing malignant lung cancer due to passive smoking is 1.22 (96% CI 1.16–1.30), for men 7.70% and for ladies – 4.68%.

- *Alcohol*

Studies suggest a direct relation between alcohol consumption and higher chances of developing cancer. Consuming alcohol can enhance the chances of developing cancer of mouth, throat, larynx, throat and liver. The amount of harm that is caused by alcohol consumption depends on the type of alcohol consumed and the amount of alcohol consumed which may lead to formation of a tumor. Studies suggest that taking alcohol having 5–7 g of unadulterated ethanol can increase the risk of developing breast tumor by 12%, if two or more drinks with the same concentration of unadulterated ethanol can increase the risk of developing colorectal tumor by 9%. Alcohol was categorised as class I carcinogen by the International Agency for Research on Cancer (IARC) as it can lead to formation of terminal liver cancer. Consumption of alcohol in any concentration i.e. high as well as low (8% to 10%) can play a major role in development of terminal cancer. Around 9-11 g of alcohol consumption by any means in women is found to be within limit and safe. The concentration of alcohol in the following drinks can be as follows: 35 ml of vodka (38%/vol), 95 ml of wine (14%/vol.), 290 ml of solid brew (4.7 %/vol.) or 380 ml of light lager. (3.2 %/vol.). The limits for alcohol consumption in men which is considered relatively safe are found to be twice that of women. The mechanism which is followed by alcohol to cause damage is by degrading the lipid layer of the barrier which covers the granules of the epithelial layer present of the mucous membrane or by inhibiting the

natural function of liver i.e. detoxification of blood. From studies conducted it is also suggested that the amount of alcohol present in mouthwash can lead to development of head and neck tumors if used for a prolonged period of time. Taking into consideration only oral cancers such as pharynx and larynx, if mouthwash having alcohol as a component are used two times a day can increase the risk of developing oral cancers up to ten folds or more in smokers, over 5 times more who consume alcohol in form of drinks on a daily basis and about six folds for people who do not consume alcohol on a daily basis. As per research conducted in Sweden on 605 patients suffering from squamous cell carcinoma of neck or head, had chances of developing oral cancer of about RR=5.8 (96% CI=2.6–11.7) when they consumed about 55g of pure alcohol or more per day. The chances of developing throat cancer were about RR=8.6 (96% CI=3.8–17.9). Wine is considered as one of the main factors among various factors by various researchers which can lead to development of cancer. Franceschi et al., conducted studies where they calculated the risk factors based on consumption of beer and spirit in comparison to wine and found that wine had more risk factors and the person consuming wine is at a higher risk of developing cancer when compared to a person consuming beer or spirit. If around 45-60 glasses of wine are consumed per week (for example around 1 2 glasses of wine every day) the chances of that person developing terminal cancer are OR=1.8 (96% CI=1.0–3.6). More cases of people with mouth, throat, larynx and esophagus cancer are detected who are actively involved in smoking as well as consumption of alcohol on a daily basis. People who are involved in alcohol consumption in addition to smoking are at a great chance of developing oral cancer. The mechanisms involved which can lead to formation of oral cancer are: the carcinogens which are present in the mouth due to smoking dissolve in oral mucosa in presence of alcohol which leads to increase in the concentration of aldehyde due to oxidation of alcohol.

- *Other chemicals*

Harmful substances are present in the household items we use every day, pesticides we use in agriculture and also in the environment which harm children at a younger age and are one of the main reasons behind the mutation in the genetic makeup. Pollution caused by automobiles and industries are toxic in nature and can lead to formation of terminal cancers among children. Smoke, industrial waste, pesticides, hair colour dye and all the chemicals which interact with people on a daily basis increase the chances of that person in developing cancer. Certain pharmaceutical drugs may also so carcinogenic properties such as stilbestrol subordinates which are given at the time of abortions, derivatives of aromatic benzene, chloro-natural substance and antibiotics which are given for bone marrow suppression (myelosuppressive).

➤ *Biological factors*

• *Diet*

Harmful substances are present in the household items we use every day, pesticides we used in agriculture and also in the environment which harm children at a younger age and are one of the main reasons behind the mutation in the genetic makeup. Pollution caused by automobiles and industries are toxic in nature and can lead to formation of terminal cancers among children. Smoke, industrial waste, pesticides, hair colour dye and all the chemicals which interact with people on a daily basis increase the chances of that person in developing cancer. Certain pharmaceutical drugs may also so carcinogenic properties such as stilbestrol subordinates which are given at the time of abortions, derivatives of aromatic benzene, chloro-natural substance and antibiotics which are given for bone marrow suppression (myelosuppressive)

The International Agency for Research on Cancer (IARC) conducted a study and proved that obesity, higher BMI and increased risk of various types of cancer were interrelated. The claims were further supported by the World Cancer Research Fund (WCRF). The reports given by WCRF in 2014 and 2015 linked obesity with ovarian and prostatic cancer. Around 1.6 million new cases are detected every year out of which 20% of the cases are indirectly or directly linked to obesity and this report was submitted by American Cancer Society. Various studies have indicated that when a group of people having higher BMI and a group of people belonging to normal BMI range when undergoing treatment of an already existing tumor, the mortality rate is higher in the group of people who have higher BMI when compared to the group of people having normal BMI. Various studies suggested that the woman who were obese were more likely to develop breast cancer when compared to the chances of a woman with normal weight developing breast cancer. People having BMI which is $>36\text{kg/m}^2$ had very high chances of developing cancer at some point of time. They were 60% more prone to cancerous growth at later point in time. Factors which contribute to development of cancerous growth in case of improper diet include improper intake of green and leafy vegetables, improper amount of fruits and vegetables, more intake of red meat which is rectified, food with high concentration of salt and food with improper amount of dietary fibers. Consuming more red meat may contribute to development of terminal colon cancer. The reason behind linking red meat with cancer is that various preservatives are used in red meat for long time preservation which includes nitrites and nitrates or the red meat needs to be prepared before consuming it so the meat undergoes through thermal processing which may lead to increased concentration of heterocyclic amines and polycyclic hydrocarbons accumulated in the food. Generally, formation of N-nitroso compounds are a result of high heme concentration which is found in case of red meat and they contribute to the growth of cancer. Less amount of vitamin A and iron in the body contributes to development of oral cancer. It is indicated from the data collected from various studies that the deficiency of folic acid in the body increases the chances of carcinogenesis. It was indicated

that the diet which is high in glycaemic index is also directly related to more chances of cancerous growth. Specific diet of a specific person also influences the risk of cancer. Studies indicated that the people living Japan consume more amounts of rice are more prone to colon and rectum cancer, people living in Australia consume more potato based diet and people living in America consume food that has high amount of refined sugars and this all influence carcinogenesis which may lead to development of a cancer in the later stages of life. As mentioned above nitrites and nitrates along with smoked food and too hot food significantly influence cancerous growth. A study was conducted by EPIC which showed that the people who consumed diet based on fruit and vegetables were 20-35% less susceptible to cancer. A diet which is rich in fats, increases the chances of breast cancer by 15% in women. A study called Nurses' Health study II was conducted in which around 43,000 women were observed for 14 years which proved that the women who had meat based diet were 46% more prone in developing breast cancer in premenopausal stage when compared to women having plant based diet and also showed that women having high amount of fruits and vegetables in their diet reduced the chances of developing breast cancer by about 21%.

• *Physical Activity*

Physical activity also plays a significant role in contributing to tumor formation. Various studies have been conducted and reports are submitted recently which explain the technique behind tumor formation due to absence of physical activity. One of the main mechanisms include the increase in the body weight due to absence of physical activity which leads to increase in the amount of fats stored in turn making a person obese. Due to this there is an increase in the hormones circulating in the blood and this hormones aid in the growth of cells and tumors. Examples of such hormones include estrogen, insulin and insulin-like growth factors. These variables are identified with the development of cells just as tumors. In the case of women ovarian hormone is circulating in the blood. Due to increased obesity, breast tissue is exposed more to ovarian hormone which can cause uncontrolled growth leading to development of breast cancer. Proof is continually accumulated which demonstrates that physical movement legitimately and by implication influences the danger of disease; in any case, right now, information regarding the matter is still inadequate.

• *Mutagenic and Carcinogenic Compounds in Food*

Due to modernization large amounts of harmful substances are released into the environment in the form of pollution which subsequently enters the food chain and from the chain it reaches to us through the food we eat may it be plant based or animal based. And these substances or pollutants which enter the food are found to be carcinogenic which can induce tumor formation. The carcinogenic substances can be naturally present or may develop in food as result of storage and processing. Such compounds are active forms of mutagens which can cause mutation by substituting a base in the DNA due to which modified proteins will be formed as a result of the mutated

sequence. Toxins are formed in certain mold or fungi which are found to be harmful and carcinogenic. Such toxins are known as mycotoxins. Around 390 types of mycotoxins have been found out of which some mycotoxins such as aflatoxins, ochratoxins are likely to be involved in the process of carcinogenesis leading to induction of breast, liver and esophageal cancer. These have a place with the most grounded contaminations that show up basically during the capacity of various food items, most regularly in maize and peanuts

Nitrosamines are compounds that are generally present in the food products such as smoked fish, beer, meat which is pickled and is found to be strongly carcinogenic. Studies suggest that they can prove beneficial and can also induce formation of gastric cancer. The food is made up of organic matter and is cooked before consuming, but some food remains half cooked due to incomplete combustion which can become a reason for formation of hydrocarbons having a condensed aromatic ring system and are aromatic as well as heterocyclic. Some of the most important carcinogens which are found in such food with the above-mentioned properties include benzo[a]pyrene and benzo[a]anthracene. One of the food compounds which shows strong mutagenic effect include roasted and soluble coffee and also in branded whisky. Certain food items in a diet are rich in proteins and when such foods are heated at very high temperature i.e. around 300°C they tend to form aromatic amines that are heterocyclic and possess carcinogenic properties. Such foods include fish body surface and heat when cooked in the fire are exposed to very high temperature as mentioned above. Some foods in a diet are rich in starch which when heated to very high temperature can lead to formation of acrylamide which is recognized as a human carcinogen which is formed during thermal heating of food with high starch content. Such foods include chips and bread and other food items.

- *Infections*

Many of the infectious agents play a direct or indirect role in development of cancer. If different types of infections reoccur within a specific period of time may lead to accumulation of specific infectious agents in a population which may be carcinogenic and on contact with such infectious agents which are also carcinogenic may induce tumor formation leading to metastatic cancer in later stages. Many of such infectious carcinogenic agents have been found and identified. For various studies it has been indicated that gastric cancer can be a result of persisting *Helicobacter Pylori* infections, lung cancer may be a result of persisting *C. pneumoniae* infection and cervical cancer may be an outcome of persisting infection caused by *Chlamydia trachomatis*. It is noted from various studies that some of the virus infecting Humans are tend to have carcinogenic properties and one such virus is Epstein-Barr virus (EBV) which can be a contributing factor in development of nasopharyngeal cancer, tongue and tonsil cancer. Some of the bacterial infections can also enhance carcinogenesis in the body. Such bacterial infections include infection by *Salmonella typhi* and *Streptococcus bovis* which may enhance the growth of colorectal cancer.

Besides the carcinogenic property of EBV, more viruses have been identified which are known to show carcinogenic properties which include Human Herpes Virus (HHV), Human Papillomavirus (HPV) and Human Hepatitis Virus (HHV). Studies show that when a person is suffering from AIDS and suffers from infection caused by Human Herpesvirus 8 (HHV8), the person is most likely to develop Kaposi's sarcoma which is a cancer that occurs in the tissue located below the skin and lining of mouth and AIDS acts as a helping agent. On the other hand, prolonged exposure to Human papilloma virus (HPV) infection is known to induce cancerous growth in cervix, tongue and tonsils as it shows high affinity towards mucosal membrane and stratified squamous epithelium tissue. In case of Human Herpes Virus (HBC, HCV, HDV), it does not directly induce carcinogenesis rather it makes easier for chronic infections to occur which can interfere with normal cell cycle function and regulation which may lead to uncontrolled growth of cells leading to malignant tumor which can be life threatening. Around 82% of cancer cases due to viral infection by Hepatitis B Virus (HBV). From all the studies that are conducted till now and all the data obtained it is proved that the second most common cancer occurring in females is cervical cancer. Out of all the Human Papilloma Virus (HPV) causing infection in humans' type 16 and 18 are most frequently occurring and are sexually transmitted viruses which causes 90% of all the cancers occurring in the squamous epithelium. Out of all the cancers occurring during viral infection leukaemia and lung cancer are induced by Human T-lymphotropic retrovirus type 1 (HTLV-1) and Human Immunodeficiency virus (HIV type 1 and 2). Tumor formation can also occur due to parasitic infections. Examples of tumor formation due to parasitic infection includes bladder cancer by liver flukes.

IV. CONCLUSION

Around 1.8 million Americans were diagnosed with cancer in 2015.1 Around 2.4 million Americans will be diagnosed with cancer by 2030. As per the development and medicines available in the United States it will allow 2 out of 3 Americans to live at least for 6 years after being diagnosed with a malignant cancer. Due to the development of Science and Technology, the option of personalized medicine is available which increases the lifespan of people diagnosed with malignant cancer. But the majority of deaths were caused due to malignant cancer claiming around 7,00,000 lives in the United States in 2015. Treatment and cure of malignant cancer remains one of the most pressing health challenges on the global level. In Africa, Asia and America 7 out of 10 deaths occur due to cancer. As indicated by WHO the ratio of deaths occurring due to cancer will increase by 75% by 2030. Some of the cancers which are diagnosed worldwide include lung (1.9 million, 13.5% of the total), breast (1.6 million, 11.7%), and colorectum (1.3 million, 9.5%) cancer. Some of the most malignant cancers diagnosed worldwide include lung (1.7 million, 19.2% of the total), liver (0.7 million, 9.0%), and stomach (0.5 million, 8.6%). Cancer. According to the studies conducted worldwide, it is proved that

environmental factors play a very important role in malignancy of cancers. Environmental factors are also responsible for influencing cell's hereditary material. This is associated with the spreading of cancer-causing agents in different geological zones. One of the most carcinogenic and most used substances used worldwide and is known to cause cancer is Tobacco. Examples of cocarcinogens which itself are not carcinogenic but influence carcinogenesis in presence of carcinogens include formaldehyde, pyrene and fluoranthene. Second substance which is carcinogenic and known to cause cancer and used worldwide is alcohol. The carcinogenic properties are greatly enhanced when tobacco and alcohol are taken together. Diet also plays an important role in formation of tumors. Improper diet leads to obesity and higher BMI which is directly linked to formation of tumor. The diet which includes red meat, higher salt concentration, lower vitamins and dietary fibers, deficiency of folic acid and lower intake of fruits and vegetables also impact cancer /tumor development. Some of the compounds present in improper combusted food and are found to be carcinogenic include nitrosamines, polycyclic hydrocarbons and acrylamide. If an infection keeps on recurring, it leads to accumulation of infectious factors in the population which are found to be carcinogenic. If an individual comes in contact with these factors the chances of that particular individual developing cancer greatly increases. Bacterial and viral infection can also enhance tumor formation and develop malignant cancer. So above mentioned all the factors play a vital role in cancer development and metastasis and it is important to be properly equipped with the details of all the factors at the time of developing treatment as well as cure.

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