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Review Article

Influence of Microbes in Progression of Cancer and DNA Damaging Effects

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Abstract

Virus uses components of the host cell to complete its life cycle. Some viruses can cause or contribute to the development of cancer. Unlike other viruses, such as influenza viruses, that cause an acute infection, oncogenic viruses often cause long-term, persistent infections. Several studies also involved in the toxicity in progression of cancer caused by different microbes. Microorganisms and their metabolic byproducts, or impact of chronic inflammation, may also be linked to oral cancers. *Helicobacter pylori* colonize the human stomach and duodenum. In some cases it can cause stomach cancer. *Salmonella Typhi* has been linked to gallbladder cancer but may also be useful in delivering chemotherapeutic agents for the treatment of melanoma, colon and bladder cancer. Saponins reduced the risks of the occurring of the cancer during advanced age. It has special structure that active for the frightening against the cells of the cancer. The concentrations and attacking power of the microbes as well as the other pathogens directly related to the concentration of the compounds such as the saponins that taken through diet as the right composition. Saponins in other way acting as the antioxidants to prevent the cancer. When the cells of the cancer attacked on the normal one then became difficult to stop the process of the metastasis. Saponins also showed activity against the nonfunctional cells of the lungs that have been attacked due to certain cause's cancer.

Keywords: Microbes, cancer, DNA, Progression, Pathogens, Immune system.

INTRODUCTION

Viruses are tiny, infectious microbes. They're technically parasites because they require a host cell to reproduce. Upon entry, the virus uses components of the host cell to complete its life cycle. Hepatitis is an inflammation of the liver. Many people with HBV go on to recover following an acute infection. However, some develop a chronic (long-term) HBV infection. The virus spreads through bodily fluids, including blood, semen, and vaginal secretions [1].

When liver damaged by the toxicity caused through the high use of the microbial food items, organs of the body not work with normal process and all functions of the liver disturbed due to the high toxicity as seen experimentally the rats used in the laboratories. Scientists are making the strategy by reducing the toxicity caused by the microbes. Onions as best source for the purpose of the cooking but recommended concentrations should be used properly [2].

Cancer bacteria are bacteria infectious organisms that are known or suspected to cause cancer. While cancer-associated bacteria have long been considered to be opportunistic (i.e., infecting healthy tissues after cancer has already established itself), there is some evidence that bacteria may be directly carcinogenic. The strongest evidence to date involves the bacterium H. pylori and its role in gastric cancer [3, 4].

The white kind of the onions have also low and less level in comparison with the other kinds of onions. The red kind of the onions have the compounds called sulphur that potentially gives the taste as well as bright colour to the onions due to which level of the cancer increases which ultimately damages to liver as studies investigated in the rats as well dogs with different levels in the laboratory for making confirmation about the toxicity of the onions caused by sulphur as well other compounds but sulphur also maintains the growth of the hair in the males as well as in the females as studied demonstrated in rats[5, 6].

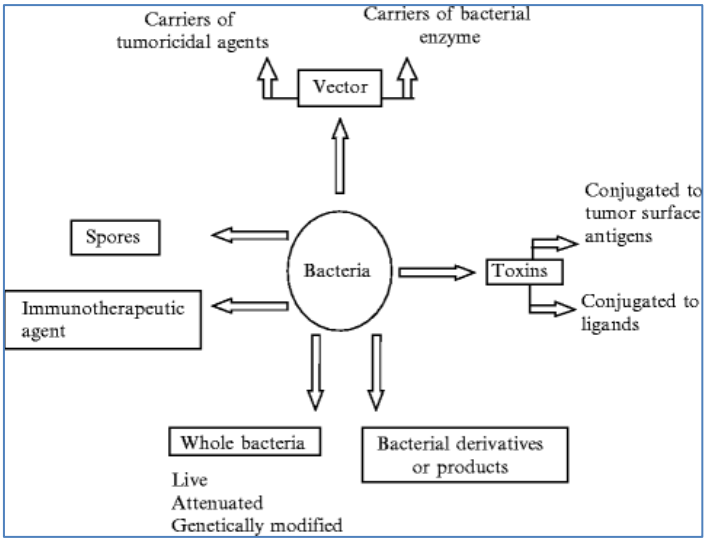

Fig-1: Shows the role of bacteria as immunotherapeutic

The important compounds that found in the inner portion in the onions included the saponins. These compounds most active against the chemicals that are causing the cancer in the cells of the living system. Their sources directly came from the plants. Onions have the large concentrations of the saponins. The compounds that obtained potentially from the plants shows effects to cells of the human are least while in comparison to the chemicals as well as the drugs that showing the effects to the cells of the living system. The other type of the advantage of the using of the saponins due to their effective absorption as well as the secretion while in comparison to the chemicals as well as the drugs. The drugs also contain the chemicals with harmful effects to different organs of the body that finally causes the cancer and ultimately the deaths. More of the saponins in onions mean there fewer chances of the cancer as well as the other disease associated with tumors and less cases of the deaths due to more of the onions in the diet [7].

Microbes in the Development of Cancer

Some viruses can cause or contribute to the development of cancer. These viruses are called oncogenic viruses. Unlike other viruses, such as influenza viruses, that cause an acute infection, oncogenic viruses often cause long-term, persistent infections. Hepatitis B virus (HBV) HBV causes viral hepatitis. According to the American Cancer Society, HCV is less likely than HBV to cause symptoms. But it's more likely to cause a chronic infection. As a result, some people may have an HCV infection and not know it. HCV spreads the same way HBV does. However, sexual activity seems to be a slightly less common cause of HCV transmission. Similarly to HBV, a chronic HCV infection can lead to prolonged liver inflammation and damage, increasing a person's risk of liver cancer. Many types of HPV are spread through skin-to-skin contact during vaginal, anal, or oral sex. Because the virus can spread through skin contact, condom and dental dam use can lower, but not completely prevent, the chances of transmission. Many people with an HPV infection eventually go on to clear it[8-10].

Several studies also involved in the toxicity in progression of cancer caused by different microbes. A study demonstrated in the mammal such as dogs supported the DNA damaging effects of the cells which ultimately damaged to the other organs such as specific part of the liver. When there is the high or the maximum concentrations of microbes in the diet used also consumed by the people for the purpose of the cooking also other purposes but the ultimate source of all cooking is the high level of the used of the food items with improper concentrations. Different types of microbes are involved in spoilage of food that ultimately caused the cancer in the particular cell [11-14].

Some of the studies about the chemical compounds showed activity of the viruses as well as the bacteria controlled though the diet that contained the compounds present in the onions in much of the quantities. These compounds have the structure correlation to chemicals of the other plants but have the high of the potential of the all activities. But in other way, compounds that present in the onions as well as the other plants also showing the toxic effects to the various cells of the body such as the cells of the liver as well as the cells of the kidneys affected by saponins which is present in the inner portion of the onions. Its useful effects to use the onions as well as the other plants in the proportions related to the diet suggested by the doctors. It also improving the overall immune system of the body [15, 16].

Role of Bacteria in the Development of Cancer

Helicobacter pylori colonize the human stomach and duodenum. In some cases it can cause stomach cancer and MALT lymphoma. Animal models have demonstrated Koch's third and fourth postulates

for the role of Helicobacter pylori in the causation of stomach cancer. The mechanism by which H. pylori causes cancer may involve chronic inflammation or the direct action of some of its virulence factors, for example, CagA has been implicated in carcinogenesis [17, 18].

Salmonella Typhi has been linked to gallbladder cancer but may also be useful in delivering chemotherapeutic agents for the treatment of melanoma, colon and bladder cancer. Bacteria found in the gut may be related to colon cancer but may be more complicated due to the role of chemoprotective probiotic cancers. Microorganisms and their metabolic byproducts, or impact of chronic inflammation, may also be linked to oral cancers [19, 20].

H. pylori are a spiral Gram-negative rod that infects and colonizes the human stomach in 50% of the world's population. In response to the overwhelming evidence linking H. pylori infection and human cancer, in 1994 the International Agency for Research on Cancer listed H. pylori as a definite human oncogenic agent. H. pylori cause over 60% of all stomach cancers, which corresponds to more than 5.5% of all cancers in the world. In a meta-analysis of 12 nested case-control studies, H. pylori were a strong risk factor for noncardia intestinal-type gastric adenocarcinoma, with a summary relative risk of 3. When serology was tested at least a decade before diagnosis, when the stomach might have been less disrupted by the progression to cancer, the summary relative risk was even greater, at 5.9. In a cohort study in Japan that evaluated both intestinal-type and diffuse-type cancers, only H. pylori-infected subjects developed stomach cancer, making the risk ratio infinite [21-24].

Saponins reduced the risks of the occurring of the cancer during advanced age. It has special structure that active for the frightening against the cells of the cancer. Its structure contains the group in the hydroxyl form that bind to the cells of the cancer in a way that cell of the cancer not proliferate in the specific site. This specific structure of the saponins specifically designed to target the cells of the cancer. It ultimately the targeted the cells of the cancer to kills them in order to prevent the normal cells of the body. When there the less of the saponins in the diet, then there are more chances of the cancer would to occur [25].

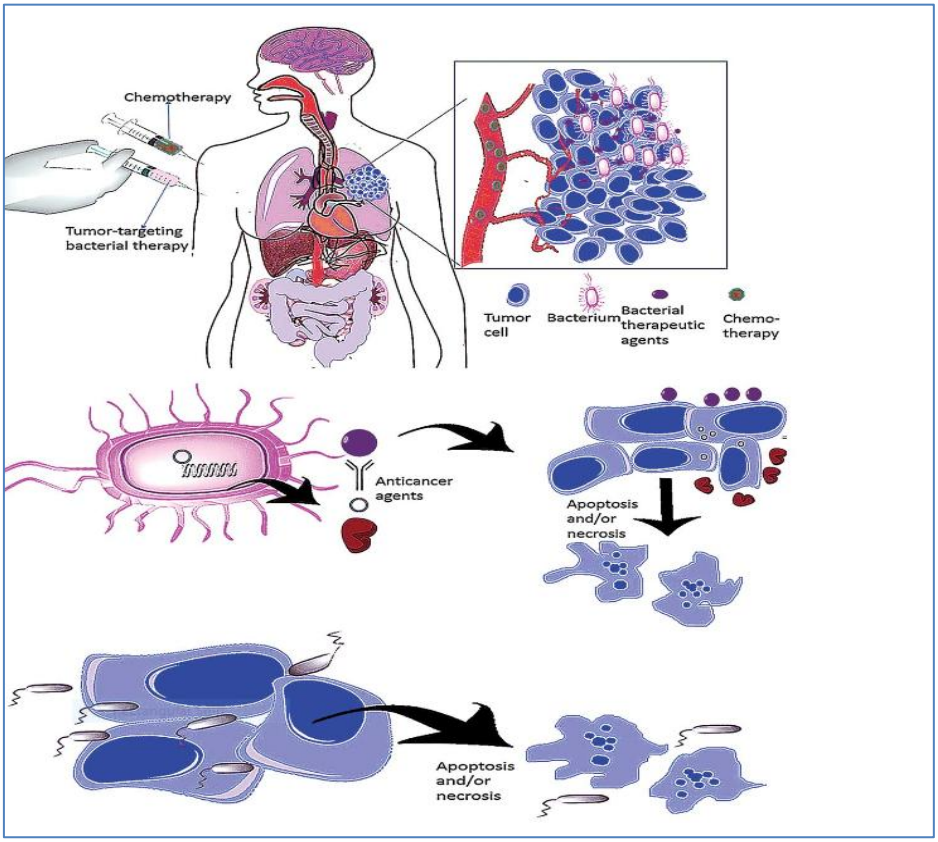

Fig-2: Shows the Role of bacteria in cancer, tumour

Role in DNA damaging effects

Some plants that used as medicinal involved in causing the severe toxic effects to the human with high concentration present in the cells or tissues of body. A study on the toxic effects of the food with microbes reported on different extracts obtained from onion such as water extract also called aqueous extract, extract obtained by mixing the extract of onion in the proper concentration of the methanol called methanolic extract exhibited considerable damage in structure of DNA also

called genetic material in the cell of K562 and disease found in that cell leads to malignant tumour due to non-proliferation of cells of blood. The chemical compounds that present in onion such as quercetin as well as propyl disulfide leads to damage of tissues and activate the process of apoptosis in the cells of K562 also in cells of lucena boost in the process of necrosis. Extract of onion especially aqueous extract from onion showed various effects on the major organs of the body such as tissues found in liver and also kidney [26-28].

Saponins as the active compounds that have been significantly reduced the risks of the cancer of heart as well as the cancer of the stomach. The onions diet contains the saponins in the large concentrations with purpose of the reducing growth of the cells of the cancer. The saponins compounds in the plants exhibited the steroids in the nature that taken in the diet in the Asia and all around the world as a food as well as for the cooking. It also reduced the level of cholesterol that highly damages to cells of the heart as well as capillaries of the blood. Once the cholesterol when deposited in cells of the heart as well as in capillaries of the blood, it caused the death of the tissues of the heart also leads to sever conditions that causes the fatal to the other organs of the body. More of the saponins in the diet and properly utilized by the cells of the body, there function included to the reducing the cholesterol. The people who using less concentration of the saponins in diet that ultimately causes the higher of the chances to attack to the cells of the heart[29,30].

The concentrations and attacking power of the microbes as well as the other pathogens directly related to the concentration of the compounds such as the saponins that taken through diet as the right composition. Optimum concentration of the saponins in diet that leads to entrapping as well as killing the microbes and pathogens. Low concentration of the saponins increases the chances of attack of microbes to cells of the body increased but with high of the concentration of the saponins, then the pathogen not easily attacked on the cells of the body.

Onions directly used used in the proper amount as a source of the daily eating food but high and more excess consumption of the onions in the diet leads to specific damaging effects to the cells. This toxicity also leads to damage the cells of the body [31-33]. Once the disturbance occurs to cells of the body due to toxicity of the onions, then defensive proteins in the onions are effectively active to fight and control the level of toxicity with no disturbance of the other normal reaction of the body. This toxicity may due to the onions also cause the damages to the organs of the body such a liver and kidneys. In one side, onions are effectively used to treat the disease but on the major side due to its side effects by using more onions in the diet disturbances the reactions in a particular organ. It should be carefully used the onions to avoid toxicity in the organ because once the toxicity occurs in the cells, then concert them into the small products that are effectively degraded from the body [34, 35].

Previous data showed that different types of the onions found depend on the colour as well as taste. The red type of the onions have great ability to cause the cancer in comparison with the other kinds of onions but by using them in the purpose of the cooking or other manual uses as well as for the purpose of storage[36].

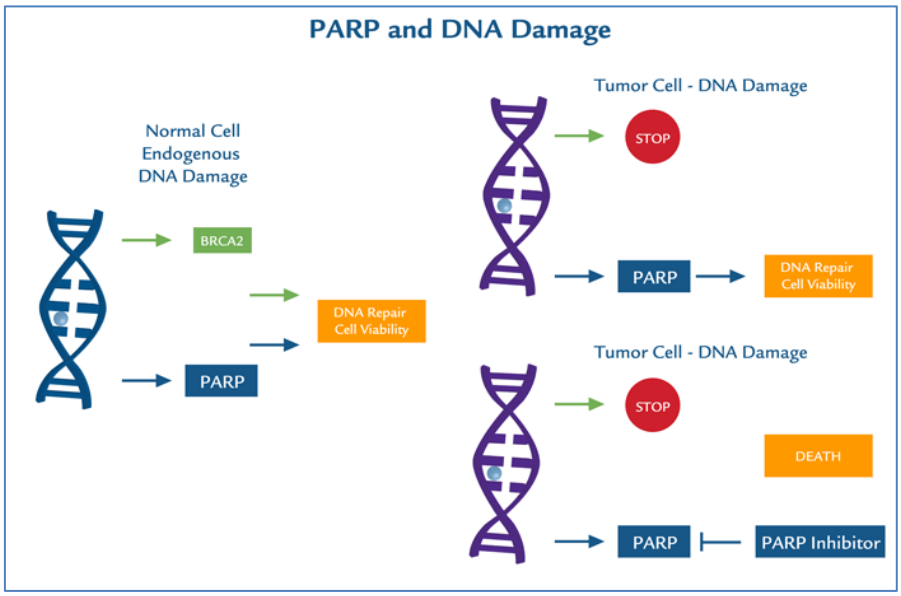

Fig-3: Shows the DNA damaging effects

Previous research showed that saponins showing the activity against the tumor cells by attaching them. Some studies about the tumor targeting by the saponins but how it finally targeted to the cells of the tumor remains unclear. The saponins when attached to the cells of the tumor that actively involved in the

process in which the cells divides in a way half of the cells formed from each daughter cell. During that process in which cell effectively divided into the other cells for the differentiation, certain types of the tumors formed due to the mutations in the particular cells. High concentration of the saponins, then the cells of the tumors not easily attack on the cells of the body but if the cells of the tumor not targeted initially then these cells proliferate to the other parts of the body and they trigged the cells of the body and kills them[37].

The artificial as well as the natural compounds that was used to treat the diseases or either causes the cancerous in the cells of the human require the exact mechanism of the action for the particular enzymes that working against them as the inhibitors. Some of the enzymes that actively participated to control the reactions of the body can inhibit by the action of the compounds that found in the onions such as the saponins as well as the flavonoids and other plants. When enzyme that targeted the compounds of the onions and taken of the chemicals in the form of diet also leads to the effects to cells of the body which ultimately causes the abnormal growth of the organs such the cells of the liver damage due to toxicity of the compounds in onions. It then causes the symptoms of the damages of cells of the liver and also the enzymes that are particularly working in the cells of the working lose activity due to inhibitory action of the certain types of the enzymes saponins from onions tumor cells but mechanism unclear [38].

Saponins in other way acting as the antioxidants to prevent the cancer. When the cells of the cancer attacked on the normal one then became difficult to stop the process of the metastasis. It overall affected the cell type that is controlled by factors in which the special type of features designed for the growth as well as the meiosis for the division of the chromosomes. Attack of the cancerous cells to normal during the growth in baby, cells of the cancer ultimate due to uncontrolled factors multiply rapidly in order to attacked as well as the kills the growing cells of the areas that close to the normal cell. More of the saponins in the diet causing the less chances of the cancer would to occur [28].

Saponins also showed activity against the abnormal or other harmful WBCs that entrapped and ultimately killed by the compounds found in the inner portion of the onions. Saponins also showed the cancer or process of the spreading of the cancer in blood by binding them. When saponins effectively bind to the abnormal WBCs, then a reaction that occurs in the body called immune response. This type of the response also depends on the concentrations as well as structure of the saponins. More concentrations of the saponins causing the less concentrations of the abnormal type WBCs. But in the other way, less concentrations of the concentrations of the saponins, then there would of more concentrations of the abnormal type WBCs. It also leads to the cancer of the blood [21, 34].

Previous data showed that less binding of saponins to abnormal WBCs causing the increases risks of the attacked of the cancerous cells to the normal cells that are the part of the immune system of the body. Once the abnormal cells or any type of the cancer cells produced, then these cells ultimately attacked other major parts of the body also destroy the other cells of the blood. When their concentrations found high in the blood then they caused the abnormal changes bone marrow that are lethal to the individual. It became important to destroy the abnormal cells of the leukocytes that are produced due to the unusual mutations in the specific part that causes the bone marrow to become the useless for the body and might be malignant to the other cells of the body as abnormal cells kills the normal cells of the individual and ultimately kills them. This type of the response caused the serious and lethal for the individual.

Previous data reported that certain types of mechanisms that clearly mentioned the targeting of the cells of the tumor but remains unclear of the study of the in which the saponins directly involved for the targeting as well as killing of the cells of the tumor from the body in the effective way to remove the toxic types of the tumor. There is need of the mechanisms about the the saponins might cause the adverse effects on the cells of the body as well as in the killing of the tumors. It is also only supported that if high concentrations of the saponins would use to targeting the cells of the tumor, then saponins then causes start targeting the normal cells as well as the cells of the tumor that are the ultimately targets of the saponins. It is important to use the saponins in the diet for the purpose as well as other biotechnologically manufactured industries, onions that contains high concentrations of the saponins, would be used carefully although it also showing the effects on the body[39].

Saponins also showed activity against the nonfunctional cells of the lungs that have been attacked due to certain cause's cancer. The cells of the lungs need the proper supply of the oxygen. With less supply of the oxygen, the cells of the lungs not their response in the taking of the air effectively from the environments. Then cells of the lungs undergoes the sever type of the inflammation which causes the death of the individual. Saponins that is in much higher in the inner portion of the onions due to certain characteristics such as the activity against the certain abnormal cells to prevent the process of the metastasis. With more amount of the saponins used in the diet, it causes the reaction that occurs in the body to inhibit. There is optimum concentrations of the saponins in diet also leads the entrapping as well as killing the abnormal cells of the lungs also presented the cells of the lungs undergoing the severe type of the inflammation.

Saponins also have active and biological important for the formation of the skin by protecting them from the microbes as well as the different infections. Actually, the skin of the human usually made of the cells which can undergoes the death and also new cells formed as the result of the death of the old and infected cells. It is important to remove the chemicals that is usually formed the when the microbes as well as the pathogens enters in the cells of the body and ultimately targeted to the cells of the immune system. Then the saponins that have high level of the compounds that are significantly targeted to the cells that causes the infection as well as the other diseases which causes the death of the various cells of the body [40].

CONCLUSION

Different microbes have become the major cause of cancer in many cells. The oxidative DNA protective potential against the free radicals activity of the onion extract remains unclear and not completely studied yet. The most important activity of the extracts of the onion is to protect the DNA by the presence of the antioxidants in the inner portion from stress caused by the oxidation that ultimately causes the cancer. The free radicals are blocked by the more concentration of the antioxidants that are present in onions. So, the people who use onions in diet as the part of the food have fewer chances of the cancer and other diseases.

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