Causes and Development of Cancer and the Effect of Age on Cancer

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Abstract. Nowadays, the disease of cancer has received more and more attention and there are medicine and living strategies to improve the living state of people who get cancer and to prevent cancer from occurring. However, some publication on how to prevent cancer and what causes the cancer are not very thorough and clear. As a result, this passage will explain these issues clearly and provide some useful strategies that can help to prevent the cancer. To explain, smoking, problems associated with metabolism and inappropriate diets can lead to cancer; depression, decrease appetite, fatigue, insomnia and pain can be symptoms of cancer; physiological situation and appetite can be affected by the aging effect; epigenetic reprogramming and inflammation are the factors of why aging can cause cancer; people can have healthy diet like taking in healthy food such as mushrooms, honey, yogurt, bananas, tea, and get into good living habits like doing physical exercises or having good sleeps, besides, they should reduce the elements which can cause cancer like arsenic in the soil in their living places Finally, it is possible that there will be some more useful medicine or new techniques that can help people better prevent cancer from happening and to better improve the living situation of people who get cancer.

Keywords: Cancer, carcinogenic factor, age, cancerous symptom, body immunity.

1. Introduction

The focus on cancer has increased in recent years. This paper aims to explore the main carcinogenic factors, especially the influence of age on the incidence of cancer. and the symptoms of cancer, the impact of age on the body's resistance and how to improve immunity. Because the publicity and prevention of cancer causes, whether online or offline, have been neglected. This article hopes to fully explain the carcinogenic factors and preventive measures.

The deputy chief physician of the Department of Cardiovascular Surgery of the Second Affiliated Hospital of Hainan Medical College has studied anti-cancer methods in terms of diet; Another professor, Professor Zhang Hui, studied the impact of lifestyle habits on the development of cancer. However, the above two well-known experts and scholars ignore some of the carcinogenic and anti-cancer factors in diet and living habits. This paper obtains and obtains more comprehensive information through its own research and comprehensive data query.

The main purpose of this article is to analyze and explore carcinogenic factors and anti-cancer methods. First, this article briefly introduces anti-cancer factors and cancerous symptoms. It then introduces the effect of age on the body's resistance and the effect of age on cancer incidence. Finally, it clarifies how to improve the body's immunity to avoid cancer.

2. Causes and Development of Cancer

2.1. Carcinogenic Factor

As many people know, there are totally five factors that lead to cancer.

Firstly, a segment of people in the society behave smoking and it is a common fact that some rest of the people nearby those who smoke, they take in secondhand-smoke which is also harmful to the lungs. There are some reasons behind the phenomenon. To begin with, smoking can cause COPD which means that the airflow can block the trachea and leads to chronic bronchitis and (or) emphysema [1]. In addition, smoking leads to bronchial asthma and the symptom of this disease are

that wheezing, shortness of breath, chest tightness, and (or) cough. Moreover, smoking is the cause of the dysfunctional of the small airway which means the small airway lesions or decreased lung elasticity limit exhaled airflow from the small airways. Besides, this disease can lead to three symptoms which are the typical presentation which means normal routine ventilation parameters, reflecting a drop in at least two of the small airway function parameters below 80% of normal estimates; the atypical presentation which means restrictive ventilation dysfunction with small airway dysfunction and other symptoms such as small airway dysfunction such as airway obstruction [2].

And when these symptoms become more deteriorated, the lungs are contaminated and bacteria comes in and make specific functions degraded and eventually leads to cancer.

Secondly, inappropriate diets can also lead to cancer. Not very standard diets include insufficient intake of fruits and fresh vegetables, insufficient dietary fiber, insufficient calcium intake, excessive intake of pickled vegetables, excessive intake of red or processed meat. And if our bodies are lack of some crucial elements, some functions will not run well. Subsequently, some organ's ability to function become weaker and weaker. Finally, the tumor forms because of the formation of necrotic tissues.

Thirdly, metabolism can also be a factor of cancer which means overweight or obese, diabetic can lead to such disease. The reasons are that Nutrients produced by cellular metabolism can provide tumors with the energy and substances needed to grow, such as glucose, amino acids, etc. Therefore, tumor cells have a greater demand for these metabolites. Tumor tissues tend to have lower oxygen concentrations than normal tissues, which affects the production and utilization of cellular metabolites. Tumor cells adapt to the hypoxic environment by altering their metabolic pathways. The pH of tumor tissue is usually low, and pH also has an effect on cellular metabolism. For example, lower pH values can promote the proliferation and invasion of tumor cells and can affect the progression of certain metabolic pathways. The excretion of metabolites can affect the stability of the intracellular environment, for example, excessive lactic acid accumulation can lead to acidification of tumor cells, which affects their growth and metastasis.

2.2. Cancerous Symptom

There are five main symptoms occurred when there happen to be the cancer. To begin with, patients may have the intensive feeling of fatigue (Fig. 1) [3]. To be specific, the fatigue are caused by three means. Firstly, the tumor causes the pain directly. Secondly, tumors cause the pain when treated. Thirdly, tumors cause the pain indirectly. Besides, when the fatigue is caused directly, there are some further reasons. Firstly, it is because of the tissue destruction, which means tumor invasion of surrounding tissues; secondly, it can be blamed on compression. To be clearer, brain tumors cause headache and cranial neuralgia; thirdly, it may because of obstruction. It is defined as that discomfort and spasm may occur when the cavity organ is obstructed by the tumor, and severe colic may occur when it is completely blocked; fourthly, it is due to tension which means when the primary or metastatic tumor of the liver grows rapidly, the liver envelope is overstretched and tightened, and severe swelling and pain in the right upper abdomen can occur; fifthly, the tumor ulcerates and can cause severe pain when infection occurs.

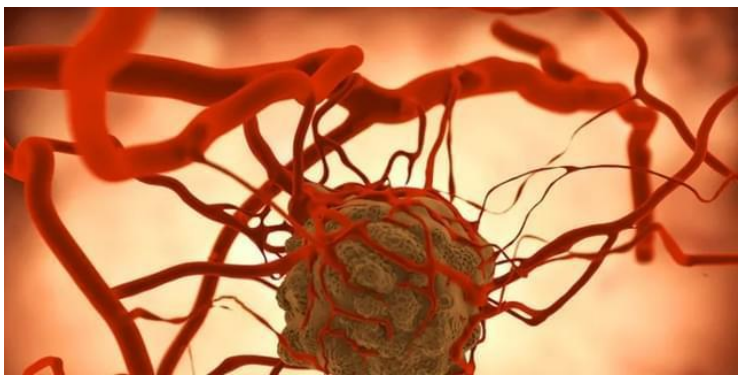


Fig. 1 Schematic diagram of cancer. https://www.nature.com/articles/s41467-018-04571-4

In addition, tumors cause pain when treated, such as radiation neuritis, embolic phlebitis caused by chemotherapy, arm swelling and pain caused by damage to the axillary lymphatic system during radical mastectomy.

Last but not least, the tumor can causes pain indirectly: bedsores appear in bed for a long time, and the body's immunity is weakened, causing pain accompanied by local infections.

Next, people who are cancerous will definitely present insomnia. To explain, there are three main symptoms in the field of cancerous insomnia. To begin with, patients may feel that the bodies have a faint tendency to have a low-grade fever. People should be alarmed when they feel that the level of inflammation in the body is too high, and it is because necrotic cells release heat. Moreover, there will be some fatigue without any obvious reasons, such as soreness in the pelvis, ribs, joints, knees, joints, legs. It is because if cancer cells compress and invade bones for a long time, it can cause unbearable pain. In addition, patients' skin may be itchy. Besides, according to relevant statistics, 16%~30% of malignant lymphoma patients, 50% of rectal cancer patients will be accompanied by different degrees of skin itching symptoms. Especially at night, if this situation is more serious, it is even more vigilant.

Moreover, people who suffer from cancer may feel distressful [4]. Besides, international studies have shown that about 20% of cancer patients have various types of depression, and the incidence is more than 3 times that of the general population. In the adult cancer population, the onset of depression can increase mortality by 39%. However, about three-quarters of cancer patients with significant depression have never received any psychological testing or pharmacological intervention. The reasons of feeling desperate are that patients may have fear of medical expenses, other reasons are like forced cessation of work, fear of cancer itself, torture of surgery and chemotherapy, physical dysfunction, disruption of family life, fear of disease recurrence and metastasis, disorganization of interpersonal relationships, fear of death.

Also, patients' psychological problems will in turn bring many negative effects to themselves, mainly including reducing quality of life, aggravating pain, increasing family burden, delaying recovery time, reducing treatment compliance and treatment effect, shortening survival, and increasing suicide risk. At the same time, the psychological state of patients will affect the occurrence, development and prognosis of tumors through the nervous system, endocrine system, immune system and many other systems.

Last but not least, cancerous patients will have decreased appetite. There are five main reasons.

To begin with, it can be blamed on patients' psychological state because that tumor patients are often affected by psychological factors such as anxiety, fear, and mental over-tension after diagnosis, which directly causes a decrease in appetite, which is the same reason that normal people do not want to eat when they encounter excessive tension in life. However, the psychological impact of tumor patients will be more complicated, especially for tumor patients who continue to adhere to treatment, the psychological factors affecting appetite will be more diverse, in addition to the anxiety, fear and tension after the above diagnosis, psychologically will also be affected by partner, family, economy and other factors, and then increase the appetite burden of tumor patients [5].

In addition, this is my because of eating disorders or anorexia caused by the tumor itself and anti-tumor treatment. Firstly, factors such as upper gastrointestinal obstruction, intestinal obstruction, and a large amount of serosal effusion can cause gastrointestinal dysfunction, which in turn affects appetite. Secondly, the progression of the tumor itself will inevitably produce adverse symptoms, such as pain, dyspnea, severe insomnia and so on, and can also cause patients to have decreased appetite, nausea and other manifestations. Thirdly, continuous anti-tumor treatment such as radiotherapy and chemotherapy, stuff like that in the treatment process due to the toxic side effects of radiation or drugs, there will also be nausea, vomiting, diarrhea, dry mouth and other problems, resulting in decreased appetite.

Moreover, the consumption of human nutrients by tumors is also a factor. The tumor itself is a malignant wasting disease, and the proliferation of cancer cells will consume a lot of energy and nutrients in the human body, and cause the deficiency of various nutrients such as zinc, iron, vitamin

A, and vitamin C. The deficiency of these nutrients will in turn cause problems such as fatigue, loss of appetite, and decreased immunity.

Besides, abnormal metabolism of tumors, interfering with appetite regulation can affect patients' appetite due to that the tumor tissue itself and the metabolic abnormalities caused by the tumor can naturally release anorexia active substances to the cardiovascular system of the human body, such as common as tumor necrosis factor-α, interferon, interleukin-1, interleukin-6, serotonin, ketone bodyand so on. And these abnormal metabolites will directly lead to loss of appetite in patients.

Last but not the least, learned anorexia involves in "learned anorexia" is a conditioned reflex to food when tumor patients have discomfort during diagnosis and treatment or when the disease causes pain, and then they have an aversion to food.

3. Relationship Between Age and Cancer

3.1. The effect of age on the body's resistance

Human immunity refers to a series of foreign body resistance to external bacteria, viruses and invasion formed by human beings in long-term evolution, as well as the ability to remove precancerous cells, senescent cells and other abnormal substances in the body. Its composition is a system, including the skin, various body fluid secretion and various immune cells in the blood, and so on, which together constitute the body's defense system and keep the body in a normal healthy state [6].

The reason that elder people's body resistance is weaker is mainly because of the increasing age. And age can affect people's well-being in the following two aspects. To begin with, the physiological situation will be affected because that firstly, elder people suffer from decreased immune system function which means with age, thymic atrophy insufficiency, T lymphocyte proliferation response weakened and other functional declines will affect human immunity. Secondly, loss of appetite and insufficient nutritional supplementation is a result. Due to tooth loss leading to difficulty in chewing, loss of taste, decreased enzyme activity and so on. The elderly are prone to a significant decrease in food intake, which in turn causes insufficient dietary protein and vitamin intake; as our age, mobility problems and reduced activity also affect further declines in food intake. Thirdly, increased physiological need for protein is a possible consequence. Long-term chronic diseases, metabolic status changes and other factors increase the physiological demand for protein in the elderly. Fourthly, reduced activity may happen according to many old people. Due to muscle atrophy and disease, reduced activity and little sunlight opportunities, resulting in vitamin D deficiency, and vitamin D is also related to immunity.

In addition, age has an impact on people's mental state for two reasons. Older people may present refusal to eat. Due to the decline in chewing and digestive function, digestive difficulties, flatulence, and constipation are prone to occur after eating, and the elderly are more inclined to choose light and digestible noodles, porridge, and soup. Vegetables, fruits and other foods rich in dietary fiber are insufficient for a long time, gastrointestinal peristalsis is slow, and it is more prone to flatulence and constipation. In addition, "greasy" and "indigestible" meat is rejected, resulting in insufficient dietary protein intake; religious beliefs may also plays their role because some elderly people believe in religion, but also tend to vegetarian diet, which is easy to cause insufficient dietary protein intake.

3.2. Effect of Age on Cancer

To begin with, epigenetic reprogramming is an issue. Multiple epigenetic changes that lead to aging and cancer include alterations in DNA methylation patterns, post-translational modifications of histones, chromatin remodeling, and function of non-coding RNAs (ncRNAs) [7]. These changes affect gene expression and other important cellular processes, and promote the development of aging and age-related human pathologies, including cancer.

Moreover, inflammation is a cause. Inflammation increases during aging and creates a condition called "inflammation", which causes many age-related diseases such as osteoarthritis, atherosclerosis, sarcopenia, and neuroinflammation. Similarly, inflammation is a contributing feature of cancer.

4. Measures to Prevent Cancer from Happening

There are mainly two ways and several related reasons that how to improve body immunity in order to prevent cancer from happening.

To start, people must have a healthy diet. There are several foods is good for human body as the following suggest [8]. First, mushrooms are helpful because mushrooms are rich in vitamin B complex and provitamin D, which can effectively improve immunity, anti-tumor, and lower blood lipids. Mushrooms also contain a special "health" ingredient - mushroom polysaccharides. Mushroom polysaccharides have strong anti-cancer and anti-cancer effects, can inhibit the growth of tumor cells, and are nutrients that improve human immunity. Moreover, it can be used clinically to enhance the immunity of cancer patients and exert anti-cancer effects. Second, carrots are also helpful for carrots contain a glycation enzyme that can decompose nitrosamines and lignin in food, increasing the vitality of macrophages in the body to swallow cancer cells by two to four times, thereby increasing the body's immunity, inhibiting the growth of cancer cells, and playing a role in cancer prevention and anti-cancer. Moreover, raw carrots can lower blood lipids and cholesterol, and can prevent coronary heart disease, arteriosclerosis and other diseases. Honey can also be taken into use due to honey has excellent antibacterial, anti-inflammatory, antiseptic functions. The shelf life of high-quality honey can reach a permanent level, so long-term use can improve immunity, prevent bacterial virus infection, and also have a miraculous effect on fatty liver. Fifth, red dates are suitable because rutin in jujube softens blood vessels, while cyclic adenosine monophosphate has immunity and anti-cancer effects. But red dates are warm food, eat more easier to get on fire, 3~5 per person per day is appropriate [9].

Besides, some ideal living habits can also help people improve the immunity. To begin with, listen to music because music not only relieves pain and reduces stress, but also improves immunity, and its effect is even better than that of drugs used before surgery. People who like to listen to music have more natural killer cells in their bodies, so they are more capable of fighting bacteria, infections, and even cancer cells. Sauna is also helpful according to an Australian study [10]. Saunas twice a week cut the chance of catching a cold, but once you get a cold, there's nothing the sauna can do to relieve symptoms and shorten recovery time. Bask in the sun is an appropriate method for many people are afraid of tanning, tanning may affect the appearance, and are also afraid that ultraviolet rays will harm the human body. But a moderate amount of sun exposure every day helps calcium absorption, and can also improve human immunity. The sun is most comfortable at eight or nine o'clock in the morning and around four o'clock in the afternoon.

5. Conclusion

From a peak in 1991 to as recently as 2020, cancer deaths for men and women combined fell by 33%, and the reduction in cancer deaths averted about 3.8 million deaths. This article mainly explores carcinogenic factors including smoking, insufficient intake of fresh fruits and vegetables, metabolism, strong fatigue, insomnia and pain and other symptoms of cancer, the influence of age on resistance and its causes, including religious beliefs and chronic diseases, the impact of age on cancer including increased inflammation and epigenetic reprogramming, and anti-cancer methods in diet and lifestyle habits. In the future, researchers can try to develop more effective anti-cancer drugs, and researchers can also try to invent or modify residential facilities or conditions, so that people can effectively fight cancer in a limited space and time and with limited resources. For example, the development of indoor arsenic measurement and reduction instruments helps people effectively avoid the harm caused by arsenic to the human body, so as to effectively avoid the occurrence of cancer. For another example, researchers can extract anti-cancer ingredients from plants and process them into drugs to help people

fight cancer. Finally, this paper aims to fully reveal the carcinogenic factors and symptoms of cancer, and propose effective and comprehensive anti-cancer methods.

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