GENE CHANGE CAUSES CANCER AND DIABETES

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ABSTRACT

Now a days people habituated for readymade life which causes various illness. At the same time lack of exercise, food habits, sleepless, tremendous pressurized work, fast food, air pollution, all these factors produces illness. In case of cancer when harmful UV radiation focuses on body it should be produce the damaged gene. Due to this reason gene sequence changes cause cancer. Some hazardous chemicals when exposed to body also causes cancer, in case of diabetes, it is some what different case caused with damage of pancreas containing beta cells of islets of longerhans damaged means insulin secretion ceased from pancreas. Our ancestors previously they suffering from diabetes and earlier reports described that there are more chances to spread the next generation due to high genetic materials, lack of physical exercise, food habits and environmental pollution.

KEYWORDS: cancer, diabetes, gene change.

INTRODUCTION

A non-communicable disease is a medical condition or disease that can be defined as non-infectious and non-transmissible among people. Non-communicable disease can refer to chronic diseases which last for long periods of time and progress slowly. Which are occurs with tobacco smoking, alcohol consumption and they may be genetic disorder or because of stress life. Non communicable disease result in rapid deaths as seen in certain types of diseases such as autoimmune diseases, most cancers, diabetes and many more. While sometimes referred to as synonymous with "chronic diseases", non communicable disease are distinguished only by their non-infectious cause, such as cancer, diabetes, sustainable
measures can be implemented to stagnate (and eventually even reverse) this emerging global health threat. Potential measures currently being discussed by the World Health Organization and Food and Agriculture Organization includes reducing the levels of salt in foods, limiting inappropriate marketing of unhealthy foods and non-alcoholic beverages to children, imposing controls on harmful alcohol use, raising taxes on tobacco, and curbing legislation to curb smoking in public places.

**Mechanism of cancer and diabetes**

Cancer is an uncontrolled proliferated cell division caused by many factors like genetic, environmental conditions and hazardous chemical contact. Genes are DNA segments that are carried in chromosomes. These genes help in determination and expression of different human characteristics. These characteristics include hair color, height, weight, etc. These genes even play a role in your personality expression and behavior patterns. The most important aspect of genes is that they also have the ability to pass on diseases and disorders. For the first time in human history, it is possible to completely redesign existing organisms, including man, and to direct the genetic and reproductive constitution of every living thing. Scientists are no longer limited to breeding and cross-pollination. Powerful genetic tools allow us to change genetic structure at the microscopic level and bypass the normal processes of reproduction and finally, we can reduce the vast majority of human diseases.

A gene is a recipe for making a protein. Proteins control cell functions and defects in the instructions for making a protein can prevent the cell from functioning properly. Genes are made of deoxyribonucleic acid (DNA), a chemical composed of units called nucleotides, and are carried on chromosomes within the cell nucleus and are present in pairs (corresponding to the two sets of chromosomes inherited from one’s parents). As well as coding for proteins, genes are the hereditary material. Therefore, genetic diseases can be inherited. Genetic defects cause diseases in a variety of ways. The simplest way is through a "loss-of-function" mutation. In this type of defect, a change in the DNA nucleotides prevents the gene from making protein, or prevents the protein from functioning once it is made.

Genetic diseases due to loss-of-function, mutations are very common. Seeks to understand how genetic variation relates to human health and disease. When searching for an unknown gene that may be involved in a disease, researchers commonly use genetic linkage and genetic pedigree charts to find the location on the genome associated with the disease. Individuals differ in their inherited tendency to develop cancer.
The process of cancer development in the body is a combination of events; mutations occasionally occur within cells in the body as they divide. Although these mutations will not be inherited by any offspring, they can affect the behavior of cells, sometimes causing them to grow and divide more frequently. There are biological mechanisms that attempt to stop this process; signals are given to inappropriately dividing cells that should trigger cell death \[^1\], but sometimes additional mutations occur that cause cells to ignore these messages. An internal process of natural selections occurs within the body and eventually mutations accumulate within cells to promote their own growth, creating a cancerous tumor that grows and invades various tissues of the body. Normally, a cell divides only in response to signals: "growth factor", it stops growing when making contact with surrounding cells (contact inhibition) and in response to growth inhibitory signals, it divides a limited number of times and dies (apoptosis) and it stays inside the epithelium and is not able to migrate to invade other organs. To become a cancer cell, a cell has to accumulate mutations in a number of genes that allow it to bypass all these regulations: it no longer needs growth factors to divide, it continues growing when making contact to neighbor cells, and ignores inhibitory signals, it will keep growing indefinitely and is neighbor cells, and ignores inhibitory signals, it will keep growing indefinitely and is immortal, it will escape from the epithelium and ultimately may be able to escape from the primary tumor \[^2,3,4\], cross the endothelium of a blood vessel, be transported by the bloodstream and will colonize a new organ, forming deadly metastasis. Although there are some genetic predispositions in a small fraction of cancers, the major fraction is due to a set of new genetic mutations that originally appear and accumulate in one or a small number of cells that will divide to form the tumor and are not transmitted to the progeny.\[^5\] The most frequent mutations are a loss of function of p\(^{53}\) protein a tumor suppressor, or in the p\(^{53}\) pathway, and gain of function mutations in the proteins, or in other oncogens. Diabetes mainly caused with dysfunction of pancreas containing β – cells of islets of langerhans or damage of these cells results in diabetes.\[^6,7,8,9,10\]
Mechanism of cancer cell proliferation

CONCLUSION
From this review concluded that on non-communicable diseases like cancer, diabetes, kidney failure, more numbers of people are suffering from these ailments because, people in urban areas are subjected to various factors like food habits, environmental pollution, water hardness, stress conditions, lack of exercise and taking proper diet from time to time diabetes will be easily controlled. If all these factors are controlled then people will lead a healthy and happy life.
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REFERENCES