World Journal of Pharmaceutical Sciences
ISSN (Print): 2321-3310; ISSN (Online): 2321-3086
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Available online at: http://www.wjpsonline.org/
Review Article

Review on Non-Communicable Diseases

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Received: 19-02-2015 / Revised: 18-03-2015 / Accepted: 25-03-2015

ABSTRACT

Now a day's illness caused by various factors like pollution, food habits, insomnia, stress conditions etc. But where as in case of non communicable diseases caused by mainly genetic disorder, environmental pollution, hazardous chemicals especially for cancer, diabetes, kidney failure. The manifestation of cancer is chemical contact and it is a genetic disorder where as in case of diabetes it may be hereditary or it is caused with stress conditions, food habits. Kidney failure is caused by genetic and stress conditions, and high copulation. Recently we have done survey on non communicable diseases at Nalgonda head quarter hospital. In every 100 members 2 persons are suffering with cancer, 16 persons with diabetes and 3 persons with kidney failure.

Key words: Non communicable diseases, Cancer, Diabetes, Kidney failure

INTRODUCTION

A non-communicable disease, or NCD, is a medical condition or disease that can be defined as non-infectious and non-transmissible among people. NCDs 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. NCDs result in rapid deaths as seen in certain types of diseases such as autoimmune diseases, most cancers, diabetes, chronic kidney disease and many more. While sometimes referred to as synonymous with "chronic diseases", NCDs are distinguished only by their non-infectious cause, such as cancer, diabetes, kidney failure, 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, diabetes, kidney failure: 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

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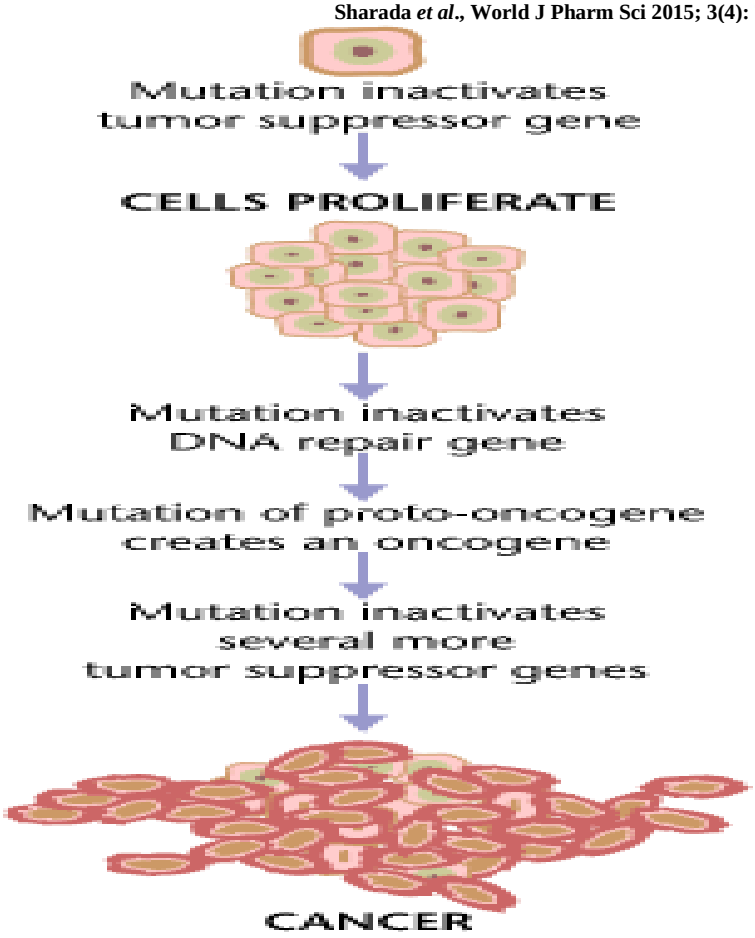
and are present in pairs (corresponding to the two sets of chromosomes inherited from one's parents). As well as coding for proteins, genes are the hereditary material. Therefore, genetic diseases can be inherited. Genetic defects cause diseases in a variety of ways. The simplest way is through a "loss-of-function" 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.

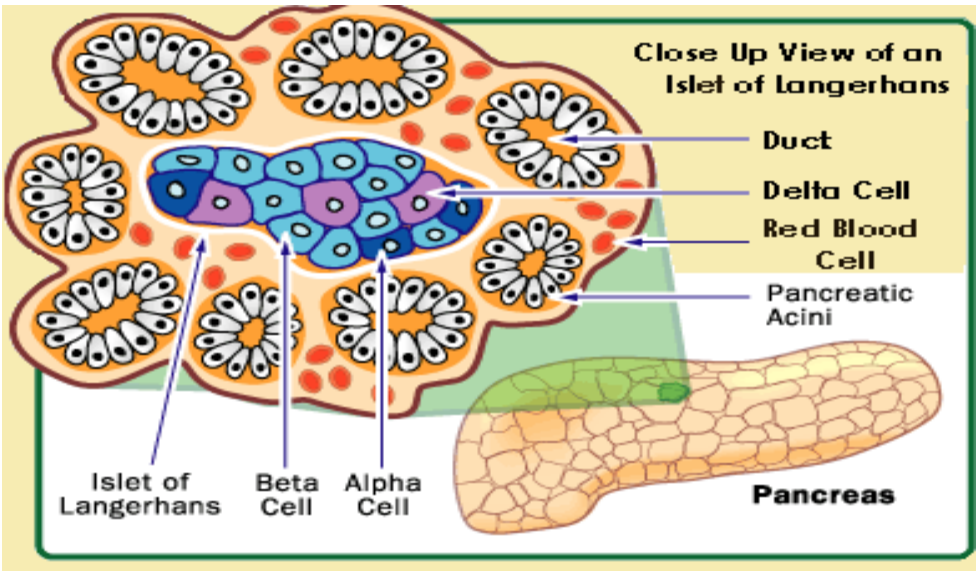
Genetic diseases due to loss-of-function, mutations are very common. Seeks to understand how genetic variation relates to human health and disease. When searching for an unknown gene that may be involved in a disease, researchers commonly use genetic linkage and genetic pedigree charts to find the location 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 immortal, it will escape from the epithelium and ultimately may be able to escape from the primary tumor, 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 [2]. The most frequent mutations are a loss of function of p53 protein a tumor suppressor, or in the p53 pathway [3], and gain of function mutations in the proteins, or in other oncogens.

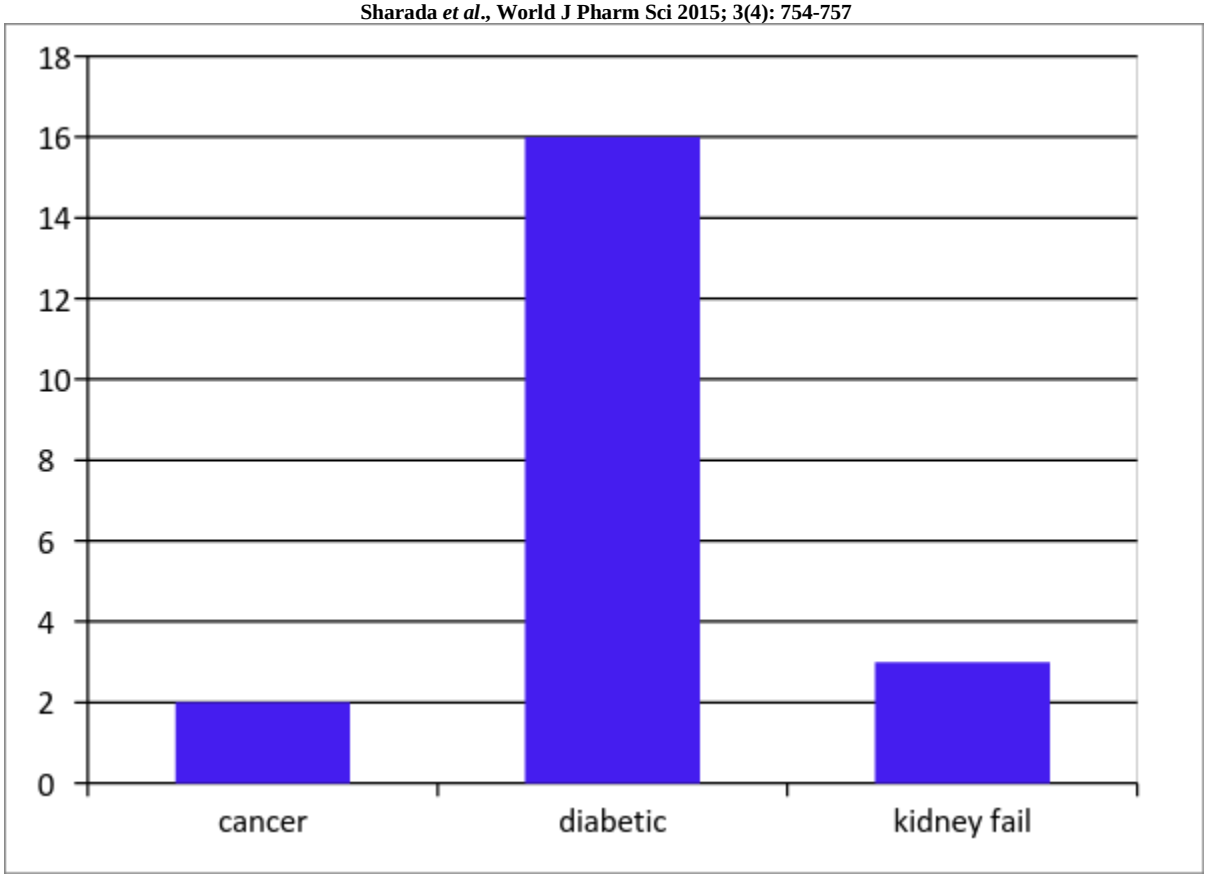
The specific action on the kidneys is not fully understood, but may be due to nephrotoxic metabolites of myoglobin [4.] Renal failure is mainly determined by a decrease in glomerular filtration rate [5] the rate at which blood is filtered in the glomeruli of the kidney. This is detected by a decrease in or absence of urine production or determination of waste products (creatinine or urea) in the blood. Depending on the cause, hematuria (blood loss in the urine) and proteinuria [6] may be noted. 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]

Diseased kidney:

Granular surface of the kidney-Decreased**,** High urine protein, Smaller size


Mutation inactivates tumor suppressor gene
CELLS PROLIFERATE
Mutation inactivates DNA repair gene
Mutation of proto-oncogene creates an oncogene
Mutation inactivates several more tumor suppressor genes
CANCER


Close Up View of an Islet of Langerhans
Duct
Delta Cell
Red Blood Cell
Pancreatic Acini
Islet of Langerhans
Beta Cell
Alpha Cell
Pancreas



Conclusion

From this survey we concluded that survey 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, loss of exercise. From the graphical representation highest ratios are seen in diabetes. 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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