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### Acute Toxic Effect of Pesticides on Human Beings: A Review

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#### Review Article

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#### ABSTRACT

The chemical war is never won and all life is caught in its violent crossfire. In our everyday food may have around thousand milligrams of pesticides. In India the indiscriminate and unregulated usage of pesticides is poisoning land, water, air and food. India spreads out nearly ninety thousands tons of pesticides in the fields, and became one of the largest users in the world. Farmers use pesticides in careless manner and some use the wrong chemical while others over use. Many farmers harvest immediately after spraying, that is why there are dangerous levels of pesticides in leafy vegetables like cauliflower, cabbage, spinach and many other vegetables like tomatoes, ladyfingers etc. Harmful fungicides are used to ripen fruits, so that it looks fresh into the market. If cauliflower looks fresh and white, it has been dipped in pesticides, the consumers would not but the natural one that is the pale yellow. Pesticides residues in vegetables, fruits, pulses, grains and water can cause numerous health complications like cancer, genetic defects and impotency. The slow poisoning of India is threatening our life.

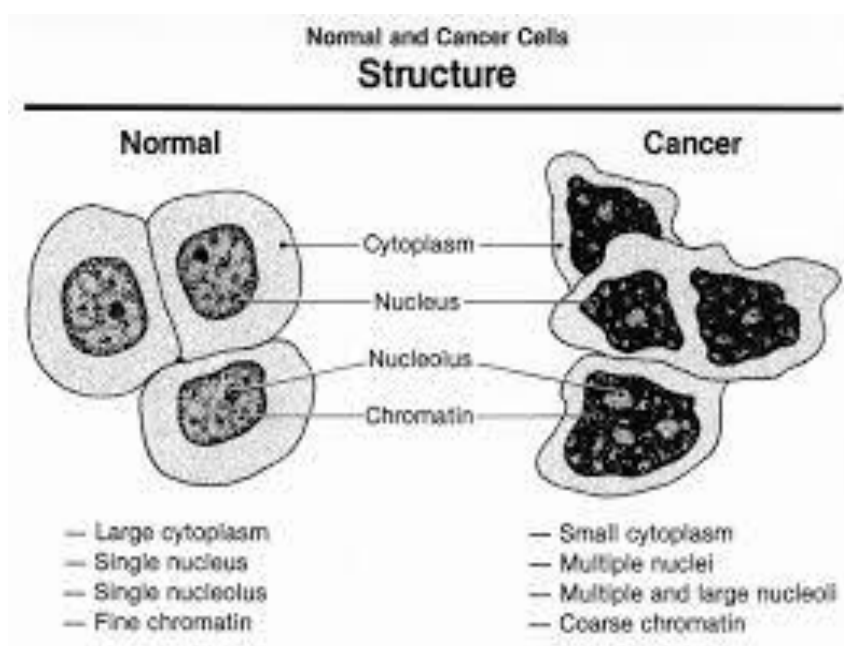
#### INTRODUCTION

There is a huge body of evidence to prove exposure to pesticides which caused an elevated rate of chronic diseases like different types of cancers, neurodegenerative disorders like Parkinson, Alzheimer, and amyotrophic lateral sclerosis, diabetes, liver damage, reproductive disorders and birth defects [1-6]. In this review, we present the few dangerous diseases due to the use of hazardous pesticides, as it requires periodic updating [7-13].

#### CANCERS

Numerous studies have analyzed the impacts of pesticide exposure on the danger of cancer. The main reports on the relationship of pesticides with disease were introduced around 50 years prior in regards to higher

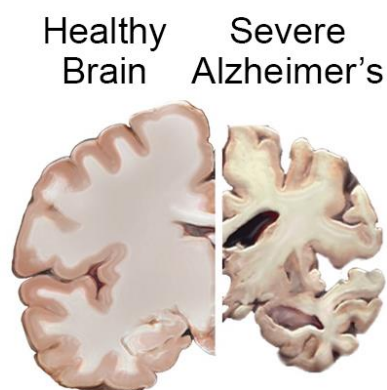
predominance of lung and skin cancer in the farmers due to the over usage of pesticide sprays as a part of grape fields. In any case, cancer-causing systems of pesticides can be investigated in their capability to influence hereditary material specifically by means of affectation of basic or utilitarian harm to chromosomes, DNA, and Histone proteins, or by implication upsetting the profile of quality expression through disability of cell organelles like mitochondria and endoplasmic reticulum, atomic receptors, endocrine system, and alternate elements required in upkeep of cell homeostasis. Scientist have been found with: leukemia, lymphoma, breast brain, kidney, liver, lung, prostate, pancreas and skin cancers (**Figure 1**). This expanded danger happens with both private and word related exposures [14-18]. Expanded rates of growth have been found among ranch laborers who apply these chemicals. A mother's exposure to pesticides amid pregnancy is connected with expansions in her child's chance of leukemia and brain cancer. The other exposure to pesticide sprays inside the home and herbicides outside is connected with blood tumors in kids [19-25].



**Figure 1.** Structure of normal and cancer cells.

### ALZHEIMER'S DISEASE

High exposure to pesticide causes neuroinflammation and neuropathology in human bearings and leads to Alzheimer's disease (**Figure 2**). The progression of AD takes place over 1-3 decades and therefore the calculable time between triggering events and onset of the illness ranges from many years to many decades, creating it tough to pinpoint explicit causal factors. The usage of synthetic pesticide, DDT caused many kinds of side effects in human bearings, especially Alzheimer's disease. DDT residues can remain in the environment for decades in the form of DDE, broken down of DDT. Studies and researches proven that the patients with Alzheimer's disease had DDE in their bodies [26-34]. But so far it is not proven that DDT exposure causes Alzheimer's disease. Most of the pesticides have been strongly related to neurotoxicity, neurodegenerative disease and other brain disorders, like Parkinson's disease. The authors note that additional analysis should be done to know prove the link between pesticides and Alzheimer's [35-39].



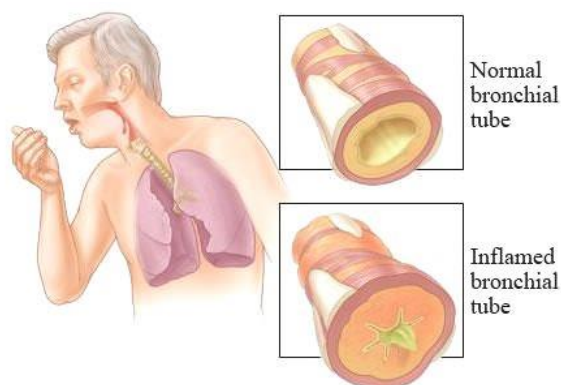
**Figure 2.** Cross sections of the brain show atrophy, or shrinking, of brain tissue caused by Alzheimer's disease.

### BIRTH DEFECTS

Birth imperfections from pesticide usage are another pathetic situation for the next generation. There are many evidences for the pesticide exposure to birth defects, fetal death and altered fetal growth. The connection amongst pesticides and birth deformities has been fixing to utilization of pesticides which used to kill and control garden insects, ants, mosquitoes and insects [40-43]. These powerful chemicals are used to control these insects, but indirectly it is affecting fetus and leads to increase the risk for oral clefts, neural tube defects, heart defects and limb defects [44-51]. Presentation to pesticides and bug sprays ought to be maintained a strategic distance from no matter what amid pregnancy.

### RESPIRATORY DISORDERS

Another concerning symptom of introduction to or ingestion of pesticides are respiratory disarranges, including wheezing, interminable bronchitis, asthma and agriculturist's lung [52-57] (**Figure 3**). Standard presentation to pesticides expands your danger for creating respiratory issues, yet can be decreased with legitimate respiratory assurance and day by day precaution measures [58-60].



**Figure 3.** Respiratory Disorders like Acute Bronchitis, Emphysema, Coronary Heart Disease.

## ENDOCRINE COMPLICATIONS

Another potential reaction of pesticide is endocrine inconveniences, particularly blocked male hormones that may influence human generation. Vegetable pesticides have been connected to blocking testosterone and different androgens, which are crucial for sound male conceptive frameworks [61-66]. The major part of these endocrine disruptors is fungicides and pesticides that are sprayed to fruits and vegetables which will remain in the food products [67-71].

## INFERTILITY AND STERILITY

Pesticides have been connected to female infertility and male sterility. Extreme exposure to pesticides through food and environment might be the reason for low sperm levels. Studies shown that there is more chances for having infertility and sterility diseases farmers and those who are more exposed to different pesticides [72-75]. Sperm count has been declining worldwide and might be the after effect of eating foods which are highly sprayed by different kinds of pesticides.

## CONCLUSION

Numerous options are accessible to reduce the effects of pesticides in the environment. Choices incorporate manual expulsion, applying heat, covering weeds with plastic, setting traps and draws, evacuating vermin reproducing destinations, keeping up sound soils that breed solid, more safe plants, planting native species, those are naturally resistant to native pests and supporting biocontrol agents, like pest predators and birds.

Natural controls, for example, safe plant assortments and the utilization of pheromones, have been effective and permanently control pest. Use botanical pesticides are good alternative to reduce the usage of synthetic pesticides. There are many plants, naturally-occurring insect toxins [76-79]. These botanical pesticides have the properties like repellency, anti-feedance, toxicity to the pest, insect growth regulatory activities against pests. Make the farmers and people aware about the all the alternative these alternatives and Integrated pest management (IPM), which cause less harm to human beings and environment. It is our responsibilities to keep our environment clean and safer for human and animals.

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