

Pesticides toxicity may causes adverse effects to our health- a review

Abstract

The human population has been doubled since 1950, which causes huge pressures to provide food for everyone, at low cost, from the limited source of on cultivated land. For compensate the urge of food synthetic pesticides have been widely used to boosting the production of food in industrial agriculture throughout the world since the 1950s. The used chemicals have become extremely pervasive in our environment some time because of repeated use and persistence in environment. They are non-degraded and take very long, like DDT and its other formed secondary products also some time causes various major problems to our health. If once they enter our food chain then very difficult to remove it from the food chain. The scientific literature revealed that the exposure to various pesticides is linked with different types of health problems such as various forms of cancer, Parkinson's and Alzheimer's like neurodegenerative diseases, and also reported its effects on newborn baby as anomalies. A report published by Greenpeace which confirm after WHO decision to re-classify 'Glyphosate' which is most widespread herbicide can be a probable human carcinogen, so the because of these Greenpeace now phase-out of the synthetic-chemical pesticides for farmer welfare and human being. The present article, emphasis on the pesticide related adverse outcome to human being and also on animals which is most important for our environments in the race of improving food quality and quantity and more tight guidelines required for its implementation of their use in the field by farmers or workers.

Keywords: pesticide, diseases, cancer, neurodegenerative, environment and non degraded

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Introduction

The Organophosphates which is more hazardous to human health include insecticides like Malathion, Parathion and Fenthion etc., and it is most widely used in developing countries (e.g.) India. Their mechanism of action in animals targeted to nervous system. They inhibit the activity of the enzyme acetylcholinesterase which breaks down the acetylcholine a very crucial neurotransmitter which conveys the nerve impulses from brain and to the body. If the activities of the enzyme acetylcholinesterase inhibit it lead to the end of a transmission between brain and to the body resulting the animals feel paralysis and many organs of the body goes to out of control. In most of the cases of insecticides poisoning, resulting death occurs due to respiratory failure. However the, Initial symptoms of poisoning showed like diarrhoea, vomiting and sweating etc. We can reduce such cases by restricting the use of pesticides but due to the high demands of food this has not been feasible so far. The reported case in India, Andhra Pradesh state (Warangal district), more than one thousand cases of poisoning of pesticide each year but most of which due to the (more than 90 per cent) are suicides. A report revealed that the agricultural pesticides account for at least 250,000 suicide deaths every year, making pesticides the single most common means of suicide worldwide.^{2,3} However, WHO estimates that suicide death rates in India is the highest among the in the world.⁴ However, globally so many agency governmental and non-governmental time to time published ban list of pesticides which are more prone to the environment and human health. Pesticide Action Network (PAN)⁵ is a global organization which provides information on the adverse effects of pesticides and promotes environmentally friendly however more critical assessments of the pesticide industry to constructive interaction with policy-makers and more training and practical services for farmers and consumers needed to improve it comes in 1982 after the report of The *Circle of Poison*. A report by

PAN reveals that many hazardous pesticides are commonly used in the field unsafe situations around the world, and needs for assertive action by corporations, governments and international bodies to address pesticide hazards. They are published report after wide-ranging survey of how pesticides are used in the field by communities around the world. In the 1981, First time the problems of pesticides in developing countries became an international public issue when a report published in "Circle of Poison by the, David Weir and Marc Shapiro, who was presented facts and figures to all about pesticide-related problems due to untrained farmers who lack appropriate personal protective equipment for protecting them. Further they explained how the pesticides cause widespread sickness and death in country of Africa, Asia and Latin America. PAN "Code of Conduct" (change name in 2013, International Code of Conduct on Pesticide Management) regarding the distribution and use of pesticides later recognized standards for all public and private entities. FAO also recommended it for safer and more efficient use of pesticides in the world. The World Health Organization (WHO) has been adopted also the Code of Conduct as in the form of guideline for public health pesticides. The WHO promotes the use of Integrated Vector Management (IVM) a method of an effective alternative to pesticides in public health control strategies.

In the developing countries since the 1980s have been the golden bullets comes in the regulations against awareness and use of pesticide poisonings. The legislation comes on the distribution, use and disposal of pesticides, their registration only possible when the pesticides properly tested and approved along with the recommendation for their training in safe and effective use. The Rotterdam Convention on the Prior Informed Consent (PIC) and the Stockholm Convention two most important internationally binding regulations dealing with pesticides became effective in 2004.

Although, after a certain important legislations nevertheless, proving definitively that exposure to a particular pesticide causes disease or other condition in humans presents a considerable challenge. There are no any groups in the human population and animals that are completely unaffected to pesticides. The Health problems that have been reported in the children exposed to prominent levels of pesticides in the womb of mother causing the issue regarding the delayed in cognitive development, in the behavioral effects which one also seen in the later in life and birth defects as like in the case of banned certain pesticides. A case report from Bangladesh published and confirmed that the paraquat induced acute kidney injury and lung fibrosis.⁶ In the India by the Ministry Of Agriculture and Farmers Welfare (Department Of Agriculture, Co-Operation And Farmers Welfare), New Delhi, published a Official Gazette notification on Pesticides (Prohibition) Order, 2018 (S.O. 3951(E)), on 8th August, 2018. The decision of the Central Government recommended list of Prohibited Pesticides are Benomyl, Carbaryl, Diazinon, Fenarimol, Fenthion, Linuron, Methyl Ethyl Mercury Chloride, Methyl Parathion, Sodium Cynide, Thiometon, Tridemorph, Trifluralin, Alachlor, Diclorvos, Phorate, Phosphamidon, Trizophos And Trichlorfon (Indian Gazette notification on Pesticides (Prohibition) Order, 2018).⁷ However, Endosulfan, a toxic pesticide now globally banned and also already ban in India (2011) due to caused health hazards. The toxic level monitoring organization, FSSAI may have given an overcast picture of India's food industry regarding pesticides, but this organization did not even exist before 2008so, previous information of pesticides effects have less information's. In the newest study which concluded that neonicotinoid pesticides have more harmful effects to pollinators than what was previously concluded in a European Food Safety Authority (EFSA) study published in 2013 and recommended for it's completely ban. Because of these the Greenpeace recommend, the research revealed that neonicotinoids are omnipresent and more persistent in the wider environment, not just in agricultural fields. Result showed that these substances are routinely showed its presence in the soils, waterways and wild flowers. The study revealed that the harmful effects of neonicotinoids are not only on the honeybees, but it also on wild bees, butterflies, birds and aquatic insects.

Suggestions and conclusion

The escaping from the prone of pesticides toxicity many more step needs to be taken and precautionary approach to regulating

pesticides, based on their hazard assessment should be taken. Phase out the various highly hazardous pesticides and it replaces them with the easily degradable ecosystem-based approaches. It should be also needs to be establishment of no-spray buffer zones between fields of crop and human or others families or communities. Now the old recommendation from code of contact needs to be adopt the life-cycle concept of pesticide management for is known period of effectiveness. However, it have been seen the not much transparency of pesticide use in the formers, so share information regarding on alternatives to highly hazardous pesticides with farmers and needs to be search its alternatives.

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Conflicts of interest

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References

1. JP Myers, Michael N Antoniou, Bruce Blumberg, et al. Concerns over use of glyphosate-based herbicides and risks associated with exposures: a consensus statement. *Environ Health*. 2016;15:19.
2. Gunnell D, Eddleston M, Phillips MR, et al. The global distribution of fatal pesticide self poisoning: systematic review. *BMC Public Health*. 2007;7:357.
3. Bertolote JM, Fleischmann A, Eddleston M, et al. Deaths from pesticide poisoning: a global response. *Br J Psychiatry*. 2006;189: 201–203.
4. Vikram Patel, Chinthanie Ramasundarahettige, Lakshmi Vijayakumar, et al. Suicide mortality in India: a nationally representative survey. *Lancet*. 2012;379(9834):2343–2351.
5. Pesticide Action Network (PAN)
6. Ishrat Tahsin Isha, Bidur Kanti Shaha Md, Shafiqul Bari, et al. Paraquat induced acute kidney injury and lung fibrosis: a case report from Bangladesh. *BMC Res Notes*. 2018;11(1):344.
7. Indian Gazette notification on Pesticides (Prohibition) Order, 2018.