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REVIEW ARTICLE

PREVENTION OF ACCIDENTAL PESTICIDE POISONING

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ABSTRACT

Pesticide poisoning is a major global health problem, and it is more prevalent in countries like India. The harmful effects on human beings in the form of acute and chronic toxicity exposed to insecticides are well established. The incidence of pesticide poisoning is increasing according to the existing reports, and it is estimated that about 5 million people die every year as a result of intentional, accidental and occupational exposure worldwide. In India majority of pesticide applicators won't use recommended personal protective equipment (PPE) and they also won't read the instruction given in the pesticide safety manual. There is need for a study to find out the patterns of uses of preventive measures for the safe use of pesticides. Also for a country that consumes one of the largest amounts of pesticides in the world, the level of regulation is woeful. Hence government agencies should regulate use of pesticides in the country in more effective way.

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INTRODUCTION

Pesticide poisoning is a major global health problem, and it is more prevalent in countries like India. The harmful effects on human beings in the form of acute and chronic toxicity exposed to pesticides are well established. Farmers spend large sums of money on pesticides to control pests affecting their vegetable crops. Although most of them can ill-afford these chemicals, the present agriculture set-up with all its new techniques has led them into pesticide dependency. Because the pesticides are commercially available without any restriction or control, often they are used excessively by these farmers in spite of their high cost and dangers of overexposure both to themselves and to the environment (Sivayoganathan *et al.*, 1995).

DISCUSSION

The incidence of pesticide poisoning is increasing according to the existing reports, and it is estimated that about 5 million people die every year as a result of intentional, accidental and occupational exposure worldwide. In India majority of pesticide applicators won't use recommended personal protective equipment (PPE) and they also won't read the instruction given in the pesticide safety manual. There is need for a study to find out the patterns of uses of preventive measures for the safe use of pesticides. Also for a country that consumes one of the largest amounts of pesticides in the world, the level of regulation is woeful. Hence government agencies should regulate use of pesticides in the country in more effective way (Report of the WPRO Regional Workshop on Epidemiology of Poisoning by Pesticides held in Singapore, 1999).

Problem Magnitude

Concern has been raised about the effects on the environment and human health caused by pesticide use, particularly in those

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countries where surveillance, control and management activities are weak or poorly developed.

Population affected

- Farmers
- Subjects may be exposed to pesticides through their use for public health purposes, as is the case for people living in treated dwellings.
- Workers involved in their industrial manufacture, formulation, and application either in agriculture or public health.
- Other agricultural workers who enter treated fields

Our concern

North Karnataka crops

Sugar cane, cotton, Maize, Jowar, sun flower, lime, grapes and pomegranate,

Effective methods for prevention of accidental pesticide poisoning

- Following the instructions correctly as given on the label
- Using personal protective equipment
- Proper storage, application and disposal
- Safeguarding ourselves from Duplicates / fake products (Matthew, 2000)

Personal Protective Equipment (PPE)

In a study conducted by Singh B and Gupta MK (Singh and Gupta, 2009). Only 23% of the respondents were in the recommended complete clothing while handling pesticide. Forty percent of pesticide applicators used to take bath and wash their clothes every day after spraying. Majority (93%) of the respondents were not using goggles and some of them (33%) were not using gloves during spraying. People of this area were conscious about inhalation exposure and 81% of the respondents were using cloth on face and 5% of the respondents were using dust mask during mixing/application of pesticide. Majorities (35%) were barefooted doing pesticide spraying, 33% applicators were using slippers and only 32% applicators were wearing shoes. Nobody was wearing gumboots.

Steps we have taken under safe use initiative from department of Forensic Medicine and Toxicology

- Poison detection centre and information centre.
- Demonstration of using Sanrakshan Kit.
- Association with DuPont India in giving awareness of importance of PPE.

- Contact information data base of personal protective equipment (PPE) availability in Vijayapur.

Conclusion

Following factors were contributing to the risk of pesticide toxicity

- Lack of suitable protective clothing for tropical climate.
- Poor knowledge and understanding of safe practices in pesticides usage.
- Farmers are not aware of exact pesticide concentration; sometimes, the concentration is excess.
- Poor maintenance facilities for spray equipment, thereby giving rise to hazardous contamination.

Steps can be taken

- More research to know the exact magnitude of accidental pesticide poisoning.
 - Increasing farmer contact centres.
 - Ensure proper monitoring of pesticide consumption at state and national level so that its misuse can be restricted.
 - Awareness about accidental pesticide poisoning and its prevention
 - Biological monitoring is particularly important in assessing pesticide exposure,
- (1) Unchanged pesticides or their metabolites in blood and urine, and
 - (2) Measurement of early biological effects of pesticides.⁵

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