

## *Editorial*

### **Current Problems of Toxicology in India**

Toxicology in India like many other places in the world is faced with problem of inattention by the appropriate authorities. Society in India is suffering due to this pitiable attention to the field of toxicology. Due to this apathy many medical, legal, social and psychiatric problems are inherent due to poor awareness of problems of toxicology.

Root cause of this problem is due to teaching and practice of toxicology by different departments in medical colleges in India. Major hurdle in advancement of toxicology in India is a unique questionable way of teaching of toxicology. Toxicology is taught to undergraduate students by the faculty of forensic medicine and they are never involved in treating the poisoning cases. Opportunities are lacking to faculty of forensic medicine to get involved in treating the poisoning cases so that there is a gap between theory and practical teaching to the students. If this gap is bridged then faculty of forensic medicine will be able to teach in a better manner the practical aspects of clinical toxicology to the students. If this practice is initiated we will achieve the ultimate aim that doctors in the emergency be able to identify the important poisons in their area and treat them. This has been also emphasized in the residency training manual of McGill University that resident medical officer should be able to treat poisoning cases effectively [1]. This will be achieved in a better way if theory and practice of toxicology is carried out in a more coherent way.

There is need to integrate study of toxicology with human nutrition and health. Many eatables contain traces or higher levels of chemicals, which may be harmful for the health of the people, which ultimately will affect the productivity of the society. This has been highlighted in the Graduate Training Program, Handbook, according to which hazardous chemicals in the food, water, air and soil definitely affect the health of the people [2].

Major hurdle in providing effective and accurate treatment to the cases of poisoning is development of only few Poison information centers. In India poisoning information centers can be counted on the finger tips. Many persons in India die due to lack of proper information about the various aspects of the poisons. A lot of efforts are needed to open more poisoning information centers, upgrade the existing poison centers and making people and medical professionals aware of the utility of poisoning information centers. This is more important for those states particularly where agriculture is the main source of economy. In these states insecticides, pesticides are used to increase production of food grains but cause poisoning in the population due to their easy availability and poor control over

their sale. Rational use of pesticides and agro-chemicals for safeguarding the health of future generations have been advocated strongly [3].

Drugs of addiction are important source of concern to the toxicologist as drugs are being used for recreational and intoxication purposes. In our country like many other places in the world money earned from sale of drugs is being utilized for spread of terrorism and sale of weapons. To reduce all these evils effective treatment centers having analytical and treatment facilities at the same institution should be developed. This will also pave the way for effective treatment of other poisons also. Without waste of time early hints will be available for the treatment guidelines from the clinical analytical centers. Environmental injuries are also very common in some parts of the country related to toxicology. Snakes and scorpions cause many fatalities which can be reduced if properly treated in time. Development of centers of excellence for poison treatment will reduce the mortality rates in all poisoning cases.

Another important raw area of toxicology is qualitative analysis rather than quantitative analysis in various chemical examiners laboratories across India. In most of the cases reports which are generated are qualitative and not quantitative after analysis of human viscera sent for chemical analysis of poisons after post-mortem examination. This raises a genuine doubt that whether reported poison in the viscera is in sufficient concentration to cause death or not. Most of the laboratories in the various states of our country are not having latest machinery and equipment which can analyze in a manner to give quantitative results. The reason for this is that most of the chemical examiners labs have insufficient funding and are unable to purchase the required equipment to run these labs efficiently. Due to old equipment these labs can analyze only few poisons and that too qualitatively and not quantitatively. This is a critical condition for delivery of absolute justice which has been ignored for a long time in India.

Toxicological occupational hazards are also common with some industries Asbestos is the most suitable example of this. Asbestos is used in manufacturing about 3000 products. It is carcinogenic in nature and involves people working in, water supply and drainage pipes, brake-shoes, roofing sheets and fire proof clothes [4]. Cytotoxic dust is also observed in bone based industries like ornamental items and decorative items manufacturing units. This is observed by monitoring of airborne concentrations of total suspended particulate matter (TSPM) [4]. More awareness is required to reduce these toxicological occupational hazards.

Many advances of scientific products have their own environmental and health hazards. We are embracing many products without being aware of their harmful effects. We are advocating use of CFL to

save electricity but do all know that CFL, is affecting our environment and it contains mercury which is quite toxic[3]. [Mobile phones may affect the health by their thermal effect and can affect the nervous system of the body [3]. [Thermal plants emit CO<sub>2</sub> and unburnt fine carbon in the smoke and they are causing hazards to the health of people in the surrounding areas near the thermal plants [5]. Emission from the vehicles is another source of pollution which is increasing day by day due to increasing number of vehicles though more stringent controls over exhaust fumes are being enforced but all efforts are being nullified due to increasing number of vehicles on the road. These are just a few common examples where people are going to face the harmful effects of these technologies without considering their actual harmful potentials.

Due to unplanned disposal of wastes there is spread of toxicity. Industry and agriculture are the main culprits for environment pollution when the industrial waste is poured into natural water channels without any treatment. At many places sewerage is thrown into main water channels without any treatment.

Syllabus of toxicology needs to be modified and updated to lay emphasis on such occupational hazards and environmental toxicology and making it more practical according to the changing needs of the society.

There is need for better awareness of problems of toxicology in India. More planning and funding for toxicology is required in India to have more poisoning information centers. Number of effective poisoning treatment centers needs to be increased. Simultaneously we need to take care of the increasing problem of addiction. De-addiction centers are required with all the facilities and trained manpower. Effective and safe disposal of industrial waste is required in all the states of the country along with effective and safe disposal of sewerage.

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### References

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