

the diagnosis of arsenic intoxication requires detection of the arsenic directly from patient materials.

Almost none of the hospitals have equipment to detect poisons. There is the Japan Information Center, but there is not a public or a commercial poison analysis institute in Japan. Police agencies can examine poisons for solving crime, but the information may not be available in time to treat the patient because the information may be qualitative analysis data.

After the episode described in this report, the Wakayama City, the Institute of Public Health, the Center of Wakayama Prefecture Institute of Public Health and the Environmental Pollution, and the Critical Care Medical Center in Japanese Red Cross in Wakayama Medical Center will have an ICP-MS, a HPLC-MS, and a fluorescence X-ray spectrometer, respectively. These institutes are situated in different places and are closed at night except for the Japanese Red-Cross Wakayama Medical Center.

There is a need to unify these instruments and to establish a poison analysis center to be practically available for determining the treatment required for victims of poisoning.

Keywords: analysis; arsenic; detection; diagnosis; electrocardiogram; intoxication; Japan Information Center; mass spectrometers; poisoning; Red Cross

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An Emergency Network for the Treatment of a Mass Poisoning Plot by the Japan Poison Information Center

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The risk management against the crime using poisonous substances has been revised after the crime using an arsenic acid substance in Wakayama Prefecture, because the delay of identification of the poisonous substance led to a loss of time in the provision of proper treatments. Thus, the Japan Poison Information Center (JPIC) has developed two databases (DB) that should be helpful for this type of disaster.

The two databases (DB) are the diagnosis-supporting DB and the registry DB of poison specialists. In this presentation, we will focus on the diagnostic database that will help identifying the causative substances from clinical symptoms and signs and laboratory data. The role of these DBs in the risk management of cases of poisoning also will be discussed.

The JPIC diagnostic database has enrolled approximately 100 poisonous substances, and will help identify the causative substances when such substances are used. The substances were selected based on the: 1) extent of systemic toxicity; 2) previous use in crime records from the past; and 3) availability of effective antidotes. Gaseous inhalation poisons and local corrosives are not included in

this database in order to increase the accuracy of the identification. Clinical symptoms and signs finally were classified into 122 basic items, and laboratory data were grouped into 40 categories. To make the identification more accurate, it is important to collect clinical information serially from the onset, because the condition of the patients might change drastically during the acute phase.

The poison specialists registered in the database consist of professionals from clinical medicine, laboratory medicine, pathology, pharmacology, legal medicine, analytical chemistry, and so on. The database classifies them by their professional specialization for chemical substances and their respective areas of research. This will support interactive estimation of the cause by enabling bi-directional information exchange between the clinicians on the scene and the specialists in areas distant from the scene.

Once such an incident of mass poisoning plot occurs, based on clinical information from the physicians actually treating the patients, the JPIC will estimate a couple of probable causative substances from the diagnostic database. Then, the JPIC will consult with the registered specialist and will proceed with chemical analysis for the suspected substance. Prior to the arsenic poisoning in Wakayama Prefecture, there was no definite rule as to where the analysis should be made. Now, tertiary emergency medical centers, the Criminal Investigation Laboratory of Prefectural police headquarters, and the Research Institute of Public Health in local governments are equipped with analytical capabilities.

It must be made clear as to who takes control of the entire system, how to obtain all the information including clinical conditions and samples, and how to give medical information on the substance to local hospital(s). Practical procedures to cope with the mass intoxication incidents should be discussed including specialized coordinating system for chemical disaster.

Keywords: agents; analysis; arsenic; chemicals; data bases; detection; diagnosis; disaster; hospitals; identification; information; Japan Poison Information Center; mass casualties; poisons; poisoning; specialists; treatment

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Detection and Identification of Unknown Poisonous Substances from Patient Material: The Experience of the Chemical Incident Response Service, London

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Introduction: The Medical Toxicology Unit started in 1963, and currently provides the following services:

- 1) National Poisons Information Service, London (receives approximately 200,000 emergency case enquiries per year from medical professionals);
- 2) Medical Toxicology Laboratory (largest hospital-based analytical toxicology laboratory in the UK);