MEDICINE & DISASTERS

Toxicological Mass Disaster Management: a Hospital Deployment Scheme

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Toxicological mass disasters have occurred frequently in the past and constitute a permanent threat in urban areas. From the standpoint of hospital planning, special consideration is needed to treat a large number of poisoned casualties in a relatively short period. Several unique medical aspects characterize toxicological mass disasters: casualties present a single disease entity with many "borderline" cases, most medical personnel are unfamiliar with the problem and casualties present a potential contamination hazard to the hospital. A hospital deployment scheme is presented recommending Decontamination, Triage and simple Treatment Algorithms to meet the medical and organizational challenge of such a mass casualty situation. A further specific deployment scheme for treatment of organophosphorus agents poisoning is described to illustrate the principles presented.

Toxicological disasters have become a constant and threatening hazard in our industrialized world, resulting over the years in thousands of poisoned casualties. The severe incident in 1976 in which an entire community was exposed to Dioxin, the worst disaster in Seveso, thousands died of methylisocyanate poisoning, demonstrate the vulnerability of our society to these accidents and emphasize the need for proper handling and planning in advance of such events. From the standpoint of hospital planning, special consideration is required and adequate measures taken to cope with a situation in which, in a relatively short time, a large number of poisoned casualties require immediate treatment.

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Toxicological mass disasters can be characterized by certain distinct features. Analyzing these specific points can help to organize a hospital deployment scheme to meet the medical and organizational challenge posed by these events.

The majority of casualties of a toxicological accident present a single disease entity since, in most instances, a single chemical is responsible for the symptoms of the victims. Thus, a large number of patients will present different degrees of a single clinical syndrome requiring a limited range of therapeutics.

A unique group of casualties will be those who were mildly exposed and consider themselves poisoned despite the lack of any objective symptoms. These casualties comprise a population "at risk," in need of repeated medical evaluation and surveillance. At the acute stage, no treatment is needed and only correct assessment and supervision must be provided in any disaster management scheme for this group.

A further problem to be overcome is the inexperience of most medical personnel with clinical toxicology and the treatment of poison victims. This, and the possibility that the clinical course of the poisoning will be highly dynamic and require prompt initiation of specific antidotal therapy, deserve special attention. Relevant clinical information and guidance must be readily accessible to hospital personnel treating such casualties, who may be contaminated by a persistent toxic chemical and become a risk to medical staff and facilities. This unique hazard of toxicological disasters warrants the use of a special decontamination facility and the wearing of protective clothing by personnel in close contact with the casualties before they are decontaminated.