

2. ANTIBACTERIAL EFFECT OF PMX-D: Suspension of *E. coli* (ATCC 25922) in sterile normal saline in the concentration of 10^5 CFU/ml was prepared. Five ml of the suspension and PMX-D 0.25 g (2-3 cm in length) was incubated in a sterile 50 ml test tube at room temperature. PMX-free fiber was used as a control. After one hour, the number of bacteria in the test tube was 4×10^5 for control and 136×10^5 for PMX-D; in four hours it became 7×10^5 for control and zero for PMX-D.

3. PMX-D SHEET FOR BURN WOUND DRESSING: PMX-D fabric (10x20 cm sheet) was used clinically as dressing for five patients with scald and flame burn (SDB-DDB). When compared with Biobrane or porcine skin, the PMX-D sheet had superior antibacterial effect and protected the wound against secondary infection

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Burn Treatment

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Video Film

This film presents the risks and effects of burns to the skin. The authors present the first-aid and medication used in treatment of a burn patient; venous access; tracheal intubation; volume replacement rules; thermal protection; and ventilation rules.

This film represents an irreplaceable pedagogic document for physicians and for the training of emergency teams.

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Immediate Assistance and First-Aid on the Spot in Fire-Disaster Education of the Public and Self-Sufficiency Training

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In the event of any kind of disaster, the moments immediately following its occurrence are, without any doubt, the most crucial. In persons suffering physical pain, their panic and anxiety about the fate of their near and dear ones create a state of psychological paralysis, a genuine state of shock. In other persons, these emotions provoke a feeling of pity and an impulse to try, at all costs, to help those who have been affected by the disaster.

The organization of rescue work, the arrival of rescue forces on the scene, and the operational phases inevitably take various hours. The distance, ways of access, the geographic features of the territory, the moment in time of the disasters,

whether day or night, all constitute decisive factors. Therefore, the management of immediate rescue work is the responsibility of operational forces in loco, i.e., the able population and, if there are any available, physicians and nurses. If the disaster has been caused by fire, the situation acquires specific characteristics. An educational program must systematically cover the following aspects:

Technical Aspects: An assessment of the extent of the damage that has been caused and of the behavior of the persons involved in the immediate post-disaster phase;

Clinical Aspects: An evolution and analysis of the number of burned persons, their age, associated lesions, and the number of dead; and

Operational Aspects: This provides for the realization of coordinates and efficient measures of first-aid care and assistance so as to prevent the damage suffered by the physical organism from causing irreversible lesions in vital organs and systems before more specialized medical care can be given.

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Early Care of Victims Exposed to Fire and Smoke

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Inhalation injury is a dominant cause of mortality in thermally injured individuals. Smoke inhalation produces early airways constriction and mucosal edema. The resulting heavy work of breathing and stress response causes a marked increase in oxygen consumption. The particles in the smoke produce both large and small airways injury as well as focal atelectasis and alveolar edema. There is evidence of increased oxygen free radical activity after smoke inhalation with and without concomitant burn injury. It is also known that smoke exposure produces lipid peroxidation in both lung and systemic organs. The presence of lipid peroxidation corresponds with both increased lung injury and mortality.

The involvement of fire gases may cause oxygen depletion and intoxication by toxic gases produced by combustion or by pyrolysis of materials, mainly carbon dioxide, carbon monoxide, and cyanohydrin derivatives. The extreme gravity of this form of intoxication requires early diagnosis and emergency treatment initiated systematically on the spot, combining oxygen therapy and the administration of hydroxycobalamin.

A survey of 14 severe fire disasters (seven indoor and seven outdoor disasters) which occurred in different parts of the world between 1973 and 1990 showed results with implications for disaster planning. The outcome was related to the presence of smoke and poisonous compounds. In indoor fires those who failed to escape died very rapidly, within 2 to 3 minutes after the start of the fire, from a combination of hypoxia and inhalation of toxic chemicals. All kinds of preventative measures must be taken to avoid these kinds of disasters.