Unfortunately, because the safety of prolonged courses of fluoroquinolones has not been established they cannot be recommended for treating leprosy. Minocycline, however, has been used for over two decades, primarily for other bacterial diseases and acne; because of its safety record in long term use our findings strongly support its application to the treatment of leprosy. Minocycline may also be a second bactericidal agent to combine with rifampicin treatment and thereby shorten the duration of treatment required to treat leprosy effectively.

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Suffocation from misuse of gas masks during the Gulf war

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We report the use of antichemical warfare kits in Israel during the recent Gulf war. The threat of Iraqi chemical missile attacks against the civilian population forced the Israeli civil defence authorities to equip the entire population of about four million with protective devices. People were instructed in advance to "seal" one room in each residence and, on hearing a missile attack alarm, immediately to enter this room and don a gas mask. Subsequent missile alerts and the ensuing confinements in the sealed room ranged from a few minutes to three hours.

Technical specifications and results

Four types of devices, intended as protection against organophosphorus and dichlorodithylsulphide compounds were distributed to residents of Israel during the autumn of 1990. These devices were manufactured by Shalom Chemical Industries Ltd. The infant carrier is a large, transparent, plastic box with a passive filter designed to protect the baby's entire body. The active hood is for children 3-4 years of age; it has a battery operated airflow. The passive mask (figure) is for teenagers and adults; it consists of two elements: a rubber face mask with a head harness regulated by five straps, and an attachable filter canister. The canister is tightly screwed into place just before use, after removal of the plastic plug that protects the canister's inlet while it is in its cardboard storage box. The fourth device, the active mask, is for older children and disabled adults. It is essentially the same as the passive mask but with a battery operated airflow.

During the Gulf war and in the wake of 39 missile attacks, 13 people died of suffocation due to mishandling of the protective devices. The bodies of eight of these victims (four males and four females aged between 3 and 78 years), were examined in the Greenberg Institute of Forensic Medicine. In seven, petechiae of the conjunctiva and facial cyanosis were detected, along with visceral petechiae and pulmonary congestion and oedema.^{1,2} Pressure marks around the nose and lips caused by the nose cup of the mask were evident in six of the victims.

Comment

Despite detailed instructions and demonstrations by civil defence personnel during the actual distribution of the kits, at least 13 people perished owing to improper handling of the equipment. In all instances where asphyxia was induced by the protective mask the victim was found lifeless with the mask covering the face

Passive mask. Note head harness with its five straps and open inlet of canister

and the plastic plug still intact in the filter canister. A small proportion of the population had reinserted the plastic plug after the first alert, hoping to prolong the filter's durability, and apparently forgot to remove the plug before putting the mask on again. When such a "plugged" mask is attached to the face and the straps of the head harness are tightened the resultant vacuum and negative pressure sucks the mask to the face, thereby impeding its removal at the first signs of dyspnoea and precipitating fatal suffocation. The 3 year old had been fitted by her parents with a plugged mask. Also a 9 month old baby had inadvertently been left for several hours in a passive plastic carrier and had succumbed to hypoxia.

To avoid inadvertent deaths from asphyxia among the users of protective masks, it seems imperative to replace the plastic plug currently supplied with the canister by a readily disposable, non-repluggable cover or lid. The passive baby carriers and even the passive adult masks should be replaced by battery operated, active airflow mechanisms, which will preclude accidental suffocation.

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