

the same time as both the committee and the health departments were recommending the opposite. Unless firm action is taken swiftly, the entire system of delivering genetic services, which the present report sees as the foundation for the future, may be damaged beyond repair.

This thorough, well informed, and critical report has implications for all fields of medicine, including primary care. Genetics can no longer be left to a small group of specialists; it increasingly permeates all areas of medicine and biomedical research and is already having a profound impact on the values and concerns of the whole of society. Reassuringly, the British parliamentary system has been able to examine this field constructively; let us hope that the government moves

speedily to implement its recommendations. If it does so, it should find a broad consensus of support among professionals and public alike; any further delay could lead to advances in human genetics causing more harm than benefit to medicine and to society.

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CS gas injury to the eye

Blowing dry air on to the eye is preferable to irrigation

Ocular injuries with acid or alkaline are common and may have devastating consequences.¹ Recently the number of cases of assault in which *O*-chlorobenzylidene malononitrile (CS) gas aerosol has been used as the weapon has been increasing. Victims have been sprayed on the face and eyes at close range. Although the sale of CS gas to individuals is illegal in Britain, the gas is still available.²

The compound is supplied as a white solid, which when disseminated characteristically forms a smoke of minute droplets or particles. Being highly soluble in water, it irritates mucous membranes and causes a pronounced local reaction within seconds of contact. The toxic basis of its effects is uncertain and is believed to result from the release of highly reactive chlorine atoms on to the skin and mucous membranes. The pronounced irritation is caused by the local formation of hydrochloric acid. Although *O*-chlorobenzylidene malononitrile has a cyanide component, this probably does not contribute to its toxic effects.^{3,4}

On contact with the gas the victim rapidly develops a severe burning discomfort and pronounced lacrimation. Blepharospasm and conjunctival oedema may occur. When inhaled, the gas irritates the nose, mouth, upper airways, and lungs. Profuse secretion provoked by contact combined with the filtering mechanism in the upper respiratory tract strains off the larger particles. Locally, the gas causes rhinorrhoea, nasal congestion, and irritation. If inhaled, particularly in a confined space, it can cause sore throat, coughing, bronchorrhoea, bronchospasm in asthmatic patients, pneumonia, and even apnoea. It is particularly dangerous in people with pulmonary diseases.

As well as its peculiar odour, CS gas has a disgusting, burning, acidic taste. If the saliva containing CS gas is swallowed nausea and vomiting may follow. On the skin the gas produces a tingling sensation and can cause erythema and blistering. The symptoms, however, are generally short lived.

If injury due to CS gas is suspected the patient should preferably be treated in a well ventilated room. Contaminated

clothing should be removed and washed thoroughly. Staff should wear impermeable gloves and close fitting goggles. Respiratory distress should be expected and treated promptly. Other injuries on the body must not be overlooked, though the patient may be concerned only by the great facial discomfort.

The preferred treatment for ocular injury due to CS gas is to blow dry air directly on to the eye, with an electric fan if available. This helps the dissolved CS gas to vaporise, and the irritation should disappear in minutes. Rinsing the eye without having done this can further induce and prolong the severe burning sensation. This is in contrast to the usual first aid treatment for acidic or alkaline burns to the anterior segment of the eye, which is irrigation with isotonic saline after instillation of local anaesthetic eye drops and checking the pH with litmus paper.

The corneal epithelium typically remains intact and the visual acuity rapidly returns to normal. By the time the patients feel normal only signs of minor disturbance remain—seen as mild conjunctival injection and punctate fluorescein staining of the cornea under slit lamp examination. The patients may then be discharged with a short course of broad spectrum antibiotic eyedrops.

CS gas is currently used by the police to control riot and individual police officers will soon be carrying it in aerosol form. The police and staff at accident and emergency departments should be able to provide appropriate first aid.

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