Treating hyperhidrosis

Humans have two functionally separate sets of eccrine sweat glands that respond to heat and emotion. One is unique to the species, populates the entire skin apart from the palms and soles, and is responsible for thermal regulation. Sweat glands of the palms and soles respond mostly to emotion, but those of the axilla respond to both heat and emotion. Sweating presents to doctors when patients perceive it as inappropriate and excessive.

Generalised hyperhidrosis may be a presenting feature of hyperthyroidism, chronic infection, or autonomic neuropathy and has been described with pheochromocytoma, the carcinoid syndrome, diabetes mellitus, acromegaly, hyperpituitarism, and gout. Local hyperhidrosis of the palms, soles, and axillae should be managed by topical treatment with a saturated solution of aluminium chloride hexahydrate in absolute alcohol, which is effective for most patients. This substance is irritating in the axilla, but the production of sweat can be controlled by carefully applying the lotion last thing at night and cautiously using mild topical steroids to suppress irritation.

A few patients do not respond to this treatment, and drugs, an operation, or both have been tried to relieve their symptoms. Systemic treatment with benzodiazepines to reduce anxiety is ineffective unless extreme drowsiness is produced. Anticholinergic drugs are a logical choice but the side effects of dry mouth, blurred vision, etc may limit their use. Axillary hyperhidrosis may be reduced by excising an ellipse of skin from the vault, but scarring and loss of full mobility may ensue. Sympathectomy is effective for palmar hyperhidrosis but carries a small risk of operative side effects—and the permanently non-sweating palm may become hyperkeratotic with both fissuring and scaling as distressing sequels.¹

Electrical treatments for hyperhidrosis were used in the 1930s,² and the publication of a description of a simple device for iontophoresis has led to a revival of interest in this subject.³ Two electrodes and a reliable source of low amperage direct current are required: one electrode is placed under the area to be treated in a shallow water bath or under a pad of cotton wool soaked in electrolyte; the other is attached similarly to the contralateral limb. Axillae may be treated by a moistened pad placed over an electrode in the axillary vault. Iontophoresis together with induction of the anticholinergic agents poldine methosulphate⁴ or glycopyrronium bromide⁵ into the skin produce freedom from sweating for four to six weeks after a few exposures. Iontophoresis with plain tap water alone is also effective but needs more exposures for the same effect.⁶ Tap water also eliminates the side effects from systemic absorption of the anticholinergic drugs. Iontophoresis works for both palmar and plantar hyperhidrosis and may reduce sweating enough for daily application of aluminium chloride hexahydrate to work. Unfortunately the technique is less successful in the axillae, which may need up to three times as many exposures as hands and feet. The mechanism of action of iontophoresis remains a mystery. Suggestions have included blockage of the sweat duct⁷ and a reversal of a so called "electric gradient" along it.⁸ These conclusions have been drawn, however, from experiments on skin from the back or the forearm, both of which are the wrong models for axillary, palmar, or plantar sweat glands.

Most dermatologists in Britain use the services of local

physiotherapy departments, where the right electrical equipment can be found. A battery run machine has been recommended for home use in the United States of America⁹; with the heavy workload in departments of physical medicine such a machine might be useful here.

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Restraining infants in cars

In 1985, 29 children aged 4 or under were killed while travelling in cars in Britain. A further 328 were injured seriously, and 2471 sustained minor injuries.¹ Such figures represent incalculable pain and suffering to the children and families affected, and one way to improve them would be to ensure that more children in cars are restrained.

Restraint systems for infants have been available in Britain for many years. The earliest were harnesses that secured the child's carrycot across the rear seat. Recently the rearward facing infant carriers have become popular, allowing babies to face their mothers while strapped into reinforced seats that are secured on front passenger seats by adult seatbelts. These infant seats are inexpensive and require no new fitments.

The value of restraining children in cars is well established, but further research is badly needed on the injuries sustained specifically by restrained and unrestrained infants. A study by the Transport and Road Research Laboratory showed that of 150 child passengers in 1126 road traffic accidents in the Thames Valley 134 (89%) were unrestrained.² Of these unrestrained children 17 were killed or sustained serious injuries—five as a result of ejection from the car and two from sitting on their parents' laps. Yet none of the 16 restrained infants sustained serious injury. A further study of children of all ages showed that restraining children reduced the overall injury rate by two thirds,³ while a survey in the United States indicated that children under 4 were more than ten times more likely to be killed in a road traffic accident if unrestrained.⁴

Despite this evidence few people in Britain take the trouble to restrain their children in cars. Recent surveys agree that at best only about one third of children in cars are restrained.³ Infants and young children are more likely to be restrained than older children, but compliance is far from satisfactory. The failure to use restraint systems may be because of the cost of purchase or installation or simply the familiar attitude that "It won't happen to me (mine)."