

nicotine chewing gum. Snuff might provide a medically acceptable alternative to smoking—or possibly addicts could be switched to a liquid preparation of pure nicotine for nasal inhalation.

Prevention

Where did this leave the health educators? As Professor Rose observed, it was unrealistic to take a group within a country and expect its members to behave differently from the country as a whole. The progressive decline in mortality from heart disease in the United States had affected men and women,

blacks and whites, and had been due, he believed, to national changes in eating habits.

Permanent change had to have its origins in the grass roots of a community, said Professor J W Farquhar of Stanford University. His health programmes relied on co-operation from adult education classes, pensioners' organisations, and a whole range of voluntary and community groupings.

In the end, therefore, the British health educators were left a little cheered that at last Britain had joined the nations with declining mortality from coronary heart disease, but they face a mammoth task. The British can expect the same low mortality rates as the French, Italians, and Greeks when they eat the same sorts of food. So how are the insular, arrogant British to be convinced that foreigners know best?

Lesson of the Week

Treatment of severe tetany due to hyperventilation during labour with a mixture of nitrous oxide, oxygen, and carbon dioxide

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The direct result of hyperventilation that accompanies painful uterine contractions is a definite and progressive reduction in maternal arterial carbon dioxide tension (PCO_2).¹ This is often exacerbated by fear and anxiety. The severe tetany that may result from appreciable respiratory alkalosis leads to painful spasms of the voluntary muscles. This adds to the pain of uterine contractions and leads to further hyperventilation. The PCO_2 tension in pregnancy is already low, the mean being 4.1 kPa (30.8 mm Hg), owing to an increased minute volume, and in labour severe hyperventilation may lead to a further drop to 2 or 3 kPa (15–22 mm Hg).² There is experimental evidence that this degree of hypocapnia may lead to fetal hypoxia and acidosis.³ Furthermore, increasing the concentration of maternal inspired oxygen consistently increases fetal oxygen tension (PO_2).⁴

Severe tetany due to hyperventilation in labour should therefore be treated by a method that provides a high inspired carbon dioxide concentration, a high inspired oxygen concentration, and also analgesia.

Case report

The patient was 26 years old and in her fourth pregnancy. She had had a therapeutic termination followed by a full term normal delivery in 1975 and a full term assisted breech delivery in 1980. In the current pregnancy she went into spontaneous labour at term and, after six hours in the first stage, the cervix was dilated 5 cm. The membranes ruptured and she experienced extremely painful uterine contractions despite having been given

Severe hyperventilation during labour should be treated by using an anaesthetic machine that delivers high oxygen and carbon dioxide concentrations as well as analgesia

100 mg intramuscular pethidine one hour before. She was hyperventilating and her midwife was unable to persuade her to breathe less deeply. She developed tingling in the finger tips followed by severe tetanic spasms of the arms and legs.

There was no fetal distress apparent on the cardiotacograph trace obtained via a scalp electrode. The midwife instructed the patient to rebreathe into a paper bag, but the patient was uncooperative and it was impossible to obtain a good bag-to-mouth seal. During contractions the paper bag was removed and the patient encouraged to breathe 50% oxygen and 50% nitrous oxide via an Entonox apparatus. After 25 minutes she was unmanageable and a doctor was summoned. Ten ml of 10% calcium gluconate was given intravenously with no effect. Ten minutes later she still had severe tetany with rigid painful carpopedal spasm and flexor spasms of the arms and legs, and the pain of the spasms was greater than that of the uterine contractions. Her respirations were jerky and speech was difficult. It was impossible for her to rebreathe into a paper bag. A rubber face mask from an anaesthetic machine was held on her face and fresh gas was delivered via a Magill circuit connected to a Boyles anaesthetic machine. The rotameters were set at nitrous oxide 3 litres, oxygen 3 litres, and carbon dioxide 2 litres, giving a total flow of 8 litres per minute. The patient's minute ventilation was higher than the fresh gas flow so that the actual inspired CO_2 would have been slightly higher than 25% because of rebreathing from the Magill circuit.

There was a dramatic response within three minutes, and she

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became rational and was able to talk. The carbon dioxide flow was reduced to 500 ml/min and after 10 minutes the carpopedal and flexor spasms had disappeared. Her only remaining complaint was of painful uterine contractions. The carbon dioxide was discontinued and she was encouraged to concentrate on relaxed shallow breathing between contractions and to use Entonox during the contractions. Twenty minutes later a cannula for epidural analgesia was inserted and 8 ml of 0.5% bupivacaine were given. Thirty-five minutes later she delivered a boy weighing 3040 g, with an Apgar score of 9 at one minute.

Comment

It is common practice to treat hyperventilation by asking the patient to rebreathe into a paper bag. This may be difficult if the patient is uncooperative. The inspired gas has a high CO₂ content, but it follows that it also has a low O₂ content and this may exacerbate any existing fetal hypoxia consequent upon maternal hypocapnia. It is often difficult to maintain a good seal between face and paper bag, and it is necessary to remove the bag to administer Entonox during uterine contractions. Giving

intravenous calcium salts may improve hypocalcaemic tetany but it does not treat the respiratory alkalosis due to hyperventilation. Epidural analgesia helps to raise the PCO₂ to normal by alleviating pain, but it would be difficult to insert an epidural cannula into a patient with severe tetanic spasms.

Giving continuously a mixture of nitrous oxide, oxygen, and carbon dioxide should be the initial treatment of choice in severe tetany in labour because it provides a high inspired CO₂ and O₂ and analgesia.

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Is long-term self-administration of Epsom salts harmful?

All cathartics should be used in as small a dose and for as short a time as possible. There is, however, no recorded evidence of specific ill effects from long-term use of magnesium sulphate (Epsom salts). If the dose were sufficient to produce frequent, watery stools then serum electrolyte disturbances (particularly hypokalaemia) might be expected, and in renal failure high serum magnesium concentrations might result. Epsom salts, used alone as a laxative, tend to produce a watery stool, but I have often used it in small daily doses over several months to supplement the effects of dietary fibre and hydrophilic colloids when these alone were insufficient to produce a soft, regular evacuation. Patients readily learn to adjust the dose from day to day in order to produce a stool of desirable consistency. Abdominal pain does not seem to occur, as it may with stimulant cathartics, particularly bisacodyl. The laxative action of magnesium sulphate is thought to be due largely to its poor absorption and a consequent osmotic effect retaining water in the lumen of the gut. The salt also stimulates release of cholecystokinin, which may affect the motility of the colon, and the release of bile due to the hormone's effect on the gall bladder may also produce catharsis.—JOHN BENNETT, consultant physician, Hull.

What might be the cause of persistent irritation of the eyelid margins?

Inflammation of the eyelid margins is termed blepharitis, and is most commonly of a simple squamous form. This is essentially an eczema-like cutaneous inflammation, and the basis is usually seborrhoea and, less commonly, rosacea. The redness and irritation are likely to be increased by external irritants such as a smoky atmosphere, cosmetics, and rubbing of the eyelids. Secondary infection, most commonly staphylococcal, may occur—though not necessarily so—and the dilated small blood vessels in the thin eyelid margin skin may make the lid edges permanently red without infection in susceptible individuals, most commonly blue-eyed blond(e)s. Treatment is often difficult and prolonged. The most important aspect is avoidance of external irritants and meticulous removal twice daily of any fine crusting and discharge from the eyelid margins by using a pledget of cotton-wool soaked in olive-oil or liquid paraffin. If there is clinical evidence of infection with crusting and discharge an antibiotic ointment such as chloramphenicol or tetracycline may be carefully rubbed into the eyelid margins using the patient's finger tip twice daily. Improvement may then be hastened by using an ointment combining an antibiotic with a corticosteroid. This should be used sparingly, otherwise superinfection with resistant bacteria or opportunist organisms may occur. Steroid preparations may also thin the skin, thus making the chronically dilated blood vessels more obvious and the abnormality of the eyelid more unsightly. The condition, being constitutional, follows a

chronic relapsing course, and steroids and antibiotics should therefore be kept in reserve for use only in periods of acute exacerbation, treatment otherwise being limited to sympathy, hygiene of the lid, and correction of any significant refractive error with glasses.—BRIAN HARCOURT, consultant ophthalmic surgeon, Leeds.

Do people with dextrocardia and transposition of the lungs and abdominal viscera have a higher than expected incidence of left-handedness?

If brain function laterality has a structural basis and if transposition of the brain occurs along with dextrocardia and situs inversus left-handedness would be overrepresented in a population with this anomaly. Left-handedness, however, is not more common in people with Kartegener's syndrome than in the general population. Almost certainly the reason for this is that the determinants of the orientation of abdominal and thoracic viscera do not bear on lateralisation of hemispheric structures. Dextrocardia and situs inversus do not, unfortunately, provide a key for unravelling the complexities of cerebral organisation.—RICHARD ROBINSON, consultant paediatric neurologist, London.

Is a fit man in his 50s wise to continue with his hobby of weight lifting?

Weight lifting is a complex and potentially dangerous sport that needs to be undertaken with care. Adequate instruction and supervision and advice are necessary in the early stages, and large lifts should never be attempted without adequate preparation. A fit man in his 50s who has been weight lifting for some time will, it is assumed, know the basics of the sport and should have a reasonable understanding of his physical powers and limitations. If he has any specific muscle or arthritic problems then he would be well advised to stop "free" lifting and seek the advice of an expert weight lifting instructor on the muscles and joints likely to be damaged if continuing in this way. Over the past decade fixed weight lifting apparatus has been developed to enable the beginner to learn safely. The apparatus is so designed that weights may be moved while the subject is sitting, lying, or standing in various postures, thereby enabling him to use the apparatus and the weights so that no strain is placed on, for instance, the neck joints. By varying the pattern and direction of pull one can isolate or use a large variety of muscle groups and joints. Anyone interested, therefore, may undertake weight lifting with such apparatus under supervision and be able to fit their aptitude, skill, and physical condition. More detailed advice and information may be obtained from senior instructors in weight lifting centres or from universities that have departments of physical education or sports science.—K G DICKINSON, university medical officer, Birmingham.