

For the prototypes a 7-in (17.8-cm) gap was cut through the springs of an ordinary hospital bed. For a mattress, two foam-rubber biscuits reaching to the edge of the 7-in aperture were used. The mattress biscuits used for the prototypes consisted of three 1-in (2.5 cm) thick pieces of foam rubber in order that the angle at the edges could be changed. After experiments the ideal edge was found to slope from the patient, so that the gap was widest nearest the bedsprings to prevent fouling of the mattress edges.

The device was designed to include a manually filled water container above the bed, connected to a sluice pan. The sluice pan then passed below the mattress and springs, and lifting a lever caused water from the container to flush the sluice pan, carrying contents into the lower, removable receptacle. The receptacle was designed to have a much greater volume on all occasions than the water container, and thus overflow was impossible (British Patent 7043-68).

While the apparatus formed a complete unit separate from the bed, it was possible to remove the receptacle after use for replacement with a clean one. Castors were fitted to the base of the unit for easy removal from the bed in order that access to the patient could be complete for examination and bedmaking.

The patients were dressed in short bed-jackets, with warm, thigh-length stockings, and were naked from waist to thigh, so that they lay with buttocks over the space. The two prototypes proved of greater use to physically handicapped patients of higher intelligence in a paediatric ward than to mentally handicapped children in a psychiatric hospital.

Results

The two prototypes were used over a period of 18 months in six patients in a ward of the 92-bed hospital for the mentally handicapped, and the following conclusions were drawn. Patients required less changing of bedclothes; owing to the less frequent changes, sleep rhythm was improved in all six patients. Associated with the improved sleep rhythm the ward of mentally retarded children was less noisy and described by nursing staff as pleasanter to work in.

Less sedation was prescribed at night for agitated patients. Three of the six mentally handicapped children in the hospital moved around the bed in a purposeless manner and on occasion fell out of bed, in keeping with their mental state. For these it was concluded that the device was of impaired benefit regarding sleep rhythm and noise, and it may possibly be of more use to patients of better intellect with a greater ability to co-operate.

In all six children tested the skin over pressure areas remained intact because excreta were not pressed against the skin and fell away freely by gravity.

As the sluice pan fitted exactly under the bedspring and the receptacle fitted tightly in place below the sluice pan the apparatus was odourless during use, and laundry costs dropped by half.

Reference

- ¹ Hutton, J., *Dying, Studies in Social Pathology*. Harmondsworth, Penguin, 1968.

Any Questions?

We publish below a selection of questions and answers of general interest

Dangers of Atmospheric Sulphuric Acid

Is any guidance available as to concentrations of atmospheric sulphuric acid which might be expected to cause damage, temporary or permanent, to the skin and eyes, particularly those of babies?

In addition to the emission of sulphuric acid droplets as such, the emission of sulphur dioxide and a sulphur trioxide can also give rise to sulphuric acid droplets in the atmosphere, the former after oxidation to the trioxide, which then combines with water. Acid droplets are found in urban atmospheres in all weather conditions, but these are larger and more numerous in misty and foggy weather. Showers of acid droplets amounting to acid rain have been observed at different times in cities. These droplets can be irritant to the skin and cause a stinging sensation if they fall upon the conjunctival surface of the eye. However, conjunctivitis or more serious ill effects on the eye under these conditions have not been reported. One study showed that the droplets in urban acid rain were between 12 μ and 500 μ in diameter with a maximum count of 2/cm²/min. In conditions other than those producing acid rain, most often the particles are less than 1 μ in diameter.

Levels of particulate acid in Central London have been shown to vary from an average of 7 μ g/m³ in summer to 18 μ g/m³ in winter, but levels as high as 678 μ g/m³ have been recorded under foggy conditions.² Sulphuric acid concentrations of 1 mg/m³ are usually not detected by normal adults following inhalation, but concentration of 5 mg/m³ are objectionable and usually produce coughing. For industrial exposures, the threshold limit value for sulphuric acid is 1 mg of particulate/m³. This is a level at which most

workers, it is believed, may be repeatedly exposed without suffering adverse effects. Levels higher than this should certainly not be tolerated in a domestic environment, and even levels approaching the threshold limit value would give rise to concern where babies may be exposed.

- ¹ Waller, R. E., *Air and Water Pollution*, 1963, 7, 773.
² Commins, B. T., *Analyst*, 1963, 88, 364.

Treatment for Dermatographia

What is the treatment for dermatographia?

Dermatographia is caused by histamine released by trauma. It is not caused by an undue response to histamine and indeed excessive liberation of histamine has been demonstrated after stroking the skin.¹ The excessive release of histamine is not due to an increase in the number of histamine producing mast cells as in urticaria pigmentosa and it seems likely that the defect is an undue response to trauma—an exaggeration of the normal response. The treatment is to give an antihistamine. However, all the currently available antihistamines are sedatives, though the sedative and antihistamine effects vary from individual to individual and so it is always worth trying different antihistamines and in adequate doses. Blockers of second histamine receptors² are still undergoing clinical trial and they could be a useful addition to the antihistamines which are at present available.

- ¹ Greaves, M. W., and Sondergaard, J., *British Journal of Dermatology*, 1970, Suppl. 6, p. 82.
² Black, J. W., Duncan, W. A. M., Durant, C. J., Ganellin, G. R., and Parsons, E. M., *Nature*, 1972, 236, 385.

Isolated Attacks of Paroxysmal Atrial Fibrillation

A fit man in his 70's with an unblemished medical history has recently had three isolated attacks of paroxysmal atrial fibrillation confirmed by E.C.G. They began suddenly, lasted a whole day, and ended spontaneously. What is the significance of these attacks?

Paroxysmal of atrial fibrillation starting late in life suggests the presence of established myocardial disease, and sustained paroxysms may precede the establishment of atrial fibrillation as the permanent rhythm. As at other ages, atrial fibrillation in paroxysmal or chronic form is most often caused by coronary artery disease, mitral valvular disease, or thyrotoxicosis, though many other conditions such as chest infection, bronchial neoplasms, pericarditis from any cause, and trivial viral infections, may also cause the arrhythmia. Thyrotoxicosis must be excluded as the onset of atrial fibrillation may be the principal manifestation of this condition in an older person. In a fit 70-year-old man, with no evidence of valvar abnormality on the E.C.G. save for the presence of the arrhythmia, and a normal P.B.I., the most likely cause of the arrhythmia is occult coronary artery disease.

The patient should be fully digitalized to control the apical rate during a paroxysm. There is a small but definite risk of pulmonary or systemic embolism which is greatest at the onset of the arrhythmia. Perhaps the patient should be warned that the paroxysm may become the established rhythm and if so control of the rate by digitalization would cause little if any disability.

Mulligan Hoods

A 35-year-old patient who had been investigated for infertility was advised to have an operation involving the insertion of cups around the fimbrial end of the tube. What is this operation and is it effective?

The results in operations on the Fallopian tubes for the restoration of fertility are not good. Most authors quote a success rates of the order of 20%, though there is variation round this figure in different series. Patency of the tubes can be demonstrated radiographically in a higher percentage, yet the patients do not become pregnant. After surgery there is an increased number of ectopic pregnancies and there is an appreciable incidence of abortion. Some papers include these failures of pregnancy among their successes, but what really matters to the patient is whether she produces a viable child. Tubal patency is not the sole requisite for conception. The physiological functions of the tube include transport of the ovum and zygote, capacitation of spermatozoa, and support of the zygote in its early days, and, possibly, the secretion of a protein coat on to the zygote which makes it adhere to the endometrium before embedding. These functions may have been destroyed by the disease process which also causes occlusion. Simply opening up the tube anatomically may not restore these vital physiological functions.

The cups mentioned in the question are probably those devised by Mulligan of Harvard.¹ In shape they are rather like the mute used in a trombone, but with a lumen drilled down the middle. The small tube is threaded down the Fallopian tube and the expanded part of the silicone rubber prosthesis is stitched to the fimbrial extremity. Before using these prostheses Mulligan had a pregnancy rate of 14% in 21 cases and three babies resulted. There were two ectopic pregnancies. With the cups there were nine term pregnancies in 45 cases (21%) and four ectopic pregnancies (8%). There were three abortions. The cups have to be removed by laparotomy 12 or more weeks after their insertion. Young

*et al.*² reported on 114 patients who had had tubal surgery. Thirty-one achieved a term pregnancy (27.2%). Another six had either an ectopic pregnancy or an abortion. Those treated with Mulligan hoods had a 16.7% pregnancy rate.

¹ Mulligan, W. J., *International Journal of Fertility*, 1966, 11, 424.

² Young, P. E., Egan, J. E., Barlow, J. J., and Mulligan, W. J., *American Journal of Obstetrics and Gynecology*, 1970, 108, 1092.

Notes and Comments

Injecting Hydroceles—an Uproved Treatment?—Mr. BRUCE W. T. PENDER (Chelmsford, Essex) writes: With reference to this question ("Any Questions?" 11 August, p. 344), which was wittily answered, the wording of the question was almost identical to one sent to me and answered recently in *The Practitioner*.¹ This was obviously not seen by your correspondent. Fortunately, the answers were roughly the same—namely, "Don't do it"—but they gave the injectable substances. Though I was not asked for dosage the *B.M.J.* was, and your expert tactfully omitted to answer this. I shall look with interest to see if your correspondent asks the same question in other journals, but perhaps soon the hydrocele will be cured radically or simple aspiration continued.

OUR EXPERT replies: I am afraid I did not see Mr. Pender's reply in the *Practitioner*, but I am glad our views are much the same. There is such a wide range of dosage mentioned in the literature that it hardly seemed worthwhile suggesting any particular one.

¹ Pender, B.W.T., *Practitioner*, 1973, 210, 586.

Severe Headache Accompanying Orgasm.—Dr. MARTIN WEINSTEIN (Brooklyn, New York) writes: Your expert ("Any Questions?" 9 June, p. 607) mentioned that this is not a recognized phenomenon. However, I have seen such a patient, and at the June 1973 combined meeting of the American Neurological Association and Canadian Congress of Neurological Sciences in Montreal, Canada, a paper was read by Drs. George W. Paulson and Harold L. Klawans, jun., titled "Benign Orgasmic Cephalgia." They had 14 such patients, 11 of whom had a past history of periodic throbbing headaches suggesting a migrainous aetiology. In three of the patients arteriograms were performed but all were negative. Whereas it was appreciated that subarachnoid haemorrhage from aneurysm or arteriovenous malformation can result from coitus, in these circumstances the headache is usually localized and thus may warrant further investigation. However, in most of the patients the pain involved the whole head and the condition was thought to be completely benign, not requiring extensive investigation.

Captain A. G. YUELL (Hong Kong) writes: I was interested to read of the woman aged 50 who experienced severe headache accompanying orgasm (9 June, p. 607). I recall seeing a man of around 40 years of age who presented with severe throbbing headache encircling his head after every occasion of intercourse. The pain lasted several days and became so intense that he was afraid to have intercourse. He had suffered a similar episode two years previously. Apart from a vasectomy a year before the first attack there was no other history or related features of note. I offered him one Cafegot tablet (ergotamine tartrate 1 mg and caffeine 100 mg) to take before intercourse, on an empirical basis, and gave him a total of 30 tablets. He has reported that any pain he subsequently suffered was not so severe and was brief, and occurred only if he had intercourse twice in a night or on consecutive nights. Since stopping the Cafegot a similar pattern obtains.