LETTERS TO THE EDITOR

DEVELOPMENT OF PNEUMOCOCCAL MENINGITIS IN A CHILD RECEIVING INTRAMUSCULAR ANTIBIOTICS


SIR—It has been a matter of controversy among physicians as to when, if ever, the intramuscular route for antibiotics is adequate in septic meningitis. Therapeutic detail included in an article you published recently about another aspect of purulent meningitis, suggests that this controversy is not yet settled (Roberts and Garrett, 1967).

Recent experience with an infant who developed purulent meningitis in this hospital may shed some light on this.

A.H., aged five months, was admitted here at 0015 hours on 6th September, 1967. The history was that he had been "chesty" for two weeks and that one week before admission his cough became more troublesome. He had fed well and seemed happy until noon on the day of admission since when his breathing had been noisy and rapid. His medical officer had given him 2 oral doses of tetracycline, 125 mg but had sent him for admission near midnight, having observed intercostal recession.

On admission the rectal temperature was 104.2°F. He was rather pale with red lips, and though obese (Wt 19¾ lb. = 8.68 kg), was thought to be slightly dehydrated. He was alert and socially responsive. He had acute purulent pharyngitis. The tympanic membranes were hidden by impacted wax. The lungs were now normal on clinical examination.

A throat swab was obtained, and 0.5 million units of crystalline penicillin given intramuscularly (i.m.i.) followed by 125 mg orally six hourly. However, eighteen hours later his temperature had fallen only to 100°F. and the pharynx was still oedematous and so the penicillin was again given intramuscularly, 0.25 million units six hourly.

Twenty-four hours later his fever reverted to 104°F and the throat had not improved. He was reluctant to feed, but there was no other abnormal finding. The original throat swab had yielded *Streptococcus viridans* only, and fearing that a causative organism had failed to grow, the antibiotic was changed to tetracycline 50 mg i.m.i. six hourly.

His fever again fell to 100°F over the next twenty-four hours, but he vomited 3 times, and seventy-two hours after admission neck stiffness was detected. Lumbar puncture revealed turbid cerebro-spinal fluid (C.S.F.) and an intra-venous regime was started at once with sulphaemazine 0.5 g eight hourly and, initially, chloramphenicol 100 mg six hourly.

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<th>Table of cerebro-spinal fluid findings</th>
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<td>Sugar mg per cent</td>
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<td>Twenty-four hours after diagnosis</td>
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<td>Forty-eight hours after diagnosis</td>
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The growth of *Streptococcus pneumoniae* was reported sensitive in vitro to, inter alia, penicillin (1.5 Unit disc) and tetracycline (10 micro-grams disc). There was no convulsion or change in level of consciousness. When adequately visualised, the tympanic membranes were normal. Later X-rays of chest, skull and mastoids were normal. Serum protein electrophoretic strip revealed no quantitative deficiency of gamma globulin. Recovery was rapid and apparently complete. No intra-thecal drugs were used.

Although the intramuscular regime before diagnosis of meningitis may not have been that which would be advocated for meningitis, it nevertheless represents in an infant, a considerable onslaught on a Gram-positive coccus which was very sensitive in vitro to the antibiotics given. The fact that on such a regime, purulent meningitis could continue to develop, and become clinically manifest after sixty to seventy-two hours, suggests that, in purulent meningitis routes of antibiotic administration other than intravenous should not be relied on, except where estimation of the blood level achieved can be routinely employed. Clearly it would be wise to give a single immediate intramuscular dose of antibiotics in circumstances where difficulty and delay in establishing an intravenous route is anticipated.

I wish to thank Major G. W. Kember, R.A.M.C. who diagnosed and carried out the treatment of this patient, and to acknowledge indebtedness to the nursing staff and to Lieutenant-Colonel W. E. Clifford, M.C.Path., and his laboratory staff at British Military Hospital, Iserlohn for their help.

I am, etc.,

H. A. J. REAY

Command Consultant Paediatrician, B.A.O.R.,
British Military Hospital,
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British Forces Post Office 24.
28th September, 1967.

REFERENCE


THE PULHEEMS SYSTEM IS INCONVENIENT


Sir—A language of symbols has no rightness or wrongness in itself, it has meaning. A symbolic and acronymous (as opposed to a simply explicit) system must have meanings known to all who use it, doctors, individual soldiers, officers and records officers and they must each know the interpretations the others give to the symbols. Whatever system is used should be primarily designed to help officers responsible for promotion, posting and allocation of duties. Accordingly the first thing for the constructors of such a system is to know the requirements of these officers. Where these are known and can be reduced to a satisfactory code where a diagnosis can be made with reasonable accuracy, where the natural history of this state is known with reasonable accuracy the assessment can be reached by formula. Where any of the three components cannot be accurately assessed judgement must be used, or guesswork.

The present system might be faulted on the grounds that physical fitness for strenuous
Letters to the Editor

physical exertion or for merely arduous work or for office work, had got symbolically mixed in with limitations of geographical pathology, of mobility, of necessity of attendance at special centres and of the usefulness of an encouraging step ladder of progress, so that one has seen a case of duodenal ulcer pass through a non-tropical phase, a physician having difficulty restricting a man to the limitations implied by B.E., records officers continually calling for prognostic information, a man confined to the United Kingdom but moving house 3 times a year, and reduction of category leading to harder or unchanged work, cessation of training and of promotion.

Do we need a system of medical categorisation in a Regular Army? PULHEEMS systems are unknown in business or politics and not much missed. The anarchic advantages of the freedom and elasticity of having no system of medical categorisation should outweigh such few advantages as the system possesses. Unit medical officers would check the health and documents of posted men and hospital medical boards would impose a few embargos e.g. not to be posted for six months, no tropical service for five years, unfit for active service overseas for one year. If this state of mild anarchy was found to be impractical at least we should emerge knowing what was needed.

I am, etc.,
D. HAMILTON

Cambridge Military Hospital,
Aldershot,
Hants.
November, 1967.

PULMONARY VENTILATOR


Sir—It is likely that a pulmonary ventilator will eventually be considered necessary for anaesthesia in the field.

I think that a ventilator which depends upon electrical power will probably prove unsuitable. I would like to suggest a modification of the Haloxair apparatus, using the existing 02 cylinder to provide the driving gas to operate a Cyclator situated where the hand-bellows now is. This would entrain a halothane/air mixture and add 2½ litres of 02 per minute to the inspired vapour. The inspired concentration of halothane could be predetermined for a fixed ventilation of (say) 600 ml tidal volume at 14 cycles per minute.

I am, etc.,
D. WAKELEY

Pontypridd & Rhondda Hospital Management Committee,
East Glamorgan General Hospital,
Church Village,
Near Pontypridd.
5th December, 1967.