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Since no other cause for the glomerulitis was found, it is possible that the patient's renal lesion developed on the basis of immune-complex formation. On the other hand, it is well known that the alternate complement pathway is activated in the skin of dermatitis herpetiformis patients.^{1,2} Perhaps a similar phenomenon also occurs in the kidney. One certainly cannot conclude from our case that glomerulitis is an integral part of dermatitis herpetiformis, but other patients with dermatitis herpetiformis might be studied for the presence of glomerulonephritis, and appropriate immunological studies might be performed.

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WITHDRAWAL SYMPTOMS IN NEONATES ASSOCIATED WITH MATERNAL IMIPRAMINE THERAPY

SIR,—I was interested in Dr Webster's letter (Aug. 11, p. 318) and I should like to mention that I also observed three newborn infants with respiratory, circulatory, and neurological signs causing much concern during the first week of life and whose mothers had taken imipramine during pregnancy.³

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HEREDITARY ANGIONEUROTIC OEDEMA

SIR,—Your editorial⁴ and Professor Pickering's letter⁵ prompt us to record our experience with replacement therapy in this condition.

We have used a partially purified preparation of C1 inhibitor, approximately the amount present in 2 litres of human plasma in 2 patients during an acute attack.^{6,7} This preparation was kindly given to us by Dr Schwick (Behringwerke) and was active as an inhibitor of C1 esterase (1200 inactivator units).⁸ A 28-year-old woman was given this preparation 4 hours after the onset of facial oedema. Despite this substitution and symptomatic therapy of 100 mg. of prednisolone per day the oedema subsided only on the third day. In contrast, a male of 55 responded within 4 hours to the same quantity of the partially purified preparation. Previous attacks usually lasted 48 hours.

The use of purified inhibitors may have several advantages: diminished risk of transfusion hepatitis and avoidance of further supplying the patient with C4 and C2, the natural substrates of C1 esterase. Furthermore, it is an obvious advantage that this preparation can be given in 10–20 ml. of saline.

We cannot yet say whether replacement therapy will be successful in every case, but with increasing experience we hope to be able to make a more definite statement.

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TREATMENT OF RESPIRATORY-DISTRESS SYNDROME

SIR,—I read with interest your leading article (Aug. 4, p. 244) on the treatment of the idiopathic respiratory-distress syndrome (I.R.D.S.).

Since reporting the first case in this department treated with continuous positive airway pressure (C.P.A.P.)¹ both this and constant positive-pressure breathing (C.P.P.B.) have been in regular use. I have been impressed by the potency of this technique and it seems probable that an excessive transpulmonary pressure may be produced particularly during recovery from I.R.D.S. This has been noted by Davies et al.² also, and the cardiovascular disturbances recorded by Gregory et al.³ in their original series seem particularly significant. In infants in this unit dying unexpectedly during the 3rd–7th day of life the foramen ovale and ductus arteriosus were widely patent. It seemed probable that increased intracardiac shunting had occurred. An objective method of assessing the optimum level of C.P.A.P. at any given stage of the illness was sought and, in view of the above, the central venous pressure (C.V.P.) as well as arterial pressure have both been continuously monitored (by Elema Schonander transducers E.M.T. 33 and E.M.T. 34 with indwelling argyle 5FG umbilical catheters). C.V.P. measurements have proven valuable in estimating the level of C.P.A.P. and of positive end-expiratory pressure (P.E.E.P.) to be used, the C.V.P. rising when the appropriate transpulmonary pressure is exceeded. Such measurements have prompted reductions in C.P.A.P. during the recovery phase of I.R.D.S. resulting in a rise in PaO_2 —that is, a reduction in right-to-left shunt. It seems likely therefore that an excessive transpulmonary pressure will increase right-to-left shunt, causing deterioration in the infant's condition. For these reasons I believe that C.P.A.P. and constant negative pressure (C.N.P.) do not have identical effects on the cardiovascular system, but I would suggest that unless the above monitoring facilities are available, it may well be "safer" to use C.N.P. in preference to C.P.A.P.

The potency of C.P.A.P. may partly be explained by the tracheal pressures noted in some of these cases. These measurements were made by a 5 FG micro-tip transducer placed in the trachea outside the endotracheal tube. As expected, during expiration, the infant has to produce considerable effort, and pressures in excess of 30 cm. H_2O were commonly found. During inspiration, however, tracheal pressures rarely fell significantly below the C.P.A.P. being applied, except with gasping inspirations. This contrasts with the large negative deflections during inspiration noted in the C.V.P. which to some extent must reflect intrapleural pressures. The mean tracheal pressure is consequently maintained at a surprisingly high level and high transpulmonary pressures are produced during both inspiration and expiration.

In those infants who require assisted ventilation C.P.P.B. has been shown to improve oxygenation.⁴ Some infants require high peak inspiratory pressures with high P.E.E.P. and such a wave form especially if inspiration is also prolonged, is not without its dangers.⁴ Considerable rises in C.V.P. can occur with high levels of P.E.E.P. and this effect is increased when the infant breathes out of phase with the ventilator. Both tracheal pressures and C.V.P. may rise dramatically. In some infants, high pressures are required to inflate the lungs⁴ and it may be that such pressures significantly impair pulmonary perfusion with increase in intracardiac shunting. The use of a device to initiate

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