

haemorrhage. This was the only death from RDS on our service during this short preliminary study though, from previous experience, we would have anticipated at least 4 such deaths in this length of time.

REFERENCES

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- Gregory, G. A., Kitterman, J. A., Phibbs, R. H., Tooley, W. H., and Hamilton, W. K. (1971). Treatment of the idiopathic respiratory-distress syndrome with continuous positive airway pressure. *New England Journal of Medicine*, **284**, 1333.

Experience with a catheter-tip transducer for continuous measurement of blood oxygen tension, including evaluation in 4 newborn babies.

P. Goddard, I. Keith, H. Marcovitch, P. J. Rolfe, and J. W. Scopes. (*Neonatal Research Unit, Institute of Child Health, Hammersmith Hospital, London W.12.*) An intravascular catheter-tip transducer continuously measuring PO_2 has been described previously. This has been modified by replacing the PTFE membrane and catheter by PVC and by employing two concentric catheters to allow for concurrent blood sampling.

It has been used in 4 newborn babies, 3 of whom were preterm and all of whom had signs of respiratory distress syndrome. In 3 treatment included the use of continuous positive airway pressure (CPAP) and in 2 mechanical ventilation became necessary. In the four transducers used, measured PO_2 agreed within 10% with that measured on an arterial sample using an IL 313 Blood Gas Analyser. One functioned for 26 hours; a second lasted 28 hours but there was a step change in calibration at 16 hours; one was functioning normally when removed at 12 hours and the fourth failed at 10 hours.

Findings included that (1) it provided an excellent

minute-by-minute guide to the condition of the infants and was a frequent early warning of subsequent clinical deterioration; (2) on a number of occasions during the performance of radial artery puncture a previously stable PO_2 fell by up to 20 mmHg without change in inspired oxygen concentration; (3) in infants with periodic or irregular respiration, PO_2 tended to vary throughout a range from 40 to 90 mmHg without change in inspired oxygen concentration; (4) during exchange transfusion in one neonate, PO_2 fell with each injection of blood; the faster the injection the greater the fall; and (5) when CPAP was started in 3 neonates with respiratory distress syndrome, PO_2 invariably began to rise immediately. After 2 to 5 minutes irregular respiration regularized, periodic respiration was abolished, apnoeic periods ceased, and respiratory excursion increased. When CPAP was disconnected a fall in PO_2 generally preceded changes in the character of respiration but this was not invariable.

Onset of labour: a paediatrician's view. H. V. Price. (*Department of Child Health, Cardiff.*) The majority of the morbidity and mortality in the newborn period is directly attributable to premature or delayed birth. The 'modern' view as mentioned by Galen is that the fetus initiates labour. The fetal adrenal is thought to contain the trigger mechanism.

Our studies have been undertaken in two ways.

Firstly, indirect evidence is presented from the Cardiff Birth Survey of the length of gestation in relation to anencephaly, spina bifida, hydrocephalus, congenital adrenal hyperplasia, and hypoplasia, and maternal smoking.

Secondly, tetracosactrin stimulation tests were performed on infants with the above complaints, and also on premature, small-for-dates, and normal infants. Findings to date support the concept that fetal adrenal function is concerned with initiating labour.