corticosteroids. Cooke cites disease... though the difference in incidence showed a significant excess of chronic lung disease. Details of lipid use are scanty—there is no information on total duration of lipid emulsion, time of start of emulsion in other than 10 days bands, whether lipid emulsion was reduced as enteral feed was increased, how often hypocholesterol... to be tested.

The association noted from this retrospective study should be investigated by a prospective randomised controlled study, comparing the current nutritional package in use in the Mersey unit for babies of 24 to 30 weeks' gestation with an intervention in which lipid is used only in babies of this gestational age range who have no respiratory disease. With the quoted (1988/9) rate of BPD in the unit of 64%, an intervention to reduce the rate to 40% would require a sample size of 126 babies in each group for the study to have a power of 90% and significance level of 0.05. As 40% of babies die or are breathing air by 28 days, the total sample size would need to be 420 babies.

In a single centre study, this would require 10 years to complete at current rates of preterm birth in the Mersey region. If the intervention reduced the rate of BPD to 25%, a total sample size of 123 babies would be required.

Without such a study, we believe that the last paragraph of this paper is invalid. Professor Cooke recommends that parenteral lipid should be restricted to older preterm infants, or those without respiratory symptoms in the belief that the risks of an increased incidence of BPD outweigh 'theoretical gains made from early lipid infusion.' We believe that the balance of risk and benefit should be reversed, and that the harm caused by lipid deprivation may greatly outweigh any theoretical reduction in the incidence of BPD. Nutritional support is a major problem in babies ventilated immature... with late use of lipid emulsion and frequent periods of lipid-free alimentation being among the main reasons. Lipid emulsion is energy rich and thus helps avoid the risk of fluid overload while achieving the main energy goal. Moreover, essential fatty acid deficiency quickly develops in preterm babies who are deprived of lipid. Fat soluble vitamins are usually supplied as an additive to parenteral lipid emulsion. There is increasing speculation that vitamin A deficiency affects the repair of injured squamous epithelium in preterm lungs, and thus contributes to the development of BPD. We would welcome a multicentre study to test Professor Cooke's hypothesis that lipid emulsion use causes an increased incidence of BPD.

Factors associated with chronic lung disease in preterm infants

Str,—Professor Cooke's assertion that... parenteral lipid emulsions should be restricted to older preterm infants, or those without respiratory symptoms is not warranted by the original data he presents or the published work he cites. I do not dispute that his analysis demonstrates association between chronic lung disease and parenteral lipid therapy but correlation is a notoriously weak proof of cause. In this case why cannot one contend that the longer a baby is ventilated, the more likely he is to receive parenteral lipid? The conclusions of such an analysis also depend on which variables one includes or, more importantly, ignores. The vitamin A status in babies of lower gestational age (ie, the largest parenteral nutrition) could exemplify the latter category.

In support of his hypothesis, Professor Cooke cites epidemiological data demonstrating that lipid-treated infants... showed a significant excess of chronic lung disease... though the difference in incidence of bronchopulmonary dysplasia (BPD) between the lipid-treated and control groups was not significant by conventional criteria... the difference in incidence was greater in these infants before randomisation. It is true that a randomised study of vitamin A supplementation demonstrated a reduced incidence of both BPD and retinopathy of prematurity... a vitamin A emulsion could only exacerbate fat soluble vitamin deficiency.

Fat is a major nutrient which provides... the desired additional calories in preterm... parenteral nutrition regimens... and broncho-pulmonary dysplasia (BPD) in premature infants. Arch Dis Child 1991;66:776-9.


Sta... We read with interest Professor Cooke's paper... in preterm infants. Arch Dis Child 1991;66:37-8.


Professor Cooke comments: Chronic lung disease (CLD) in preterm infants results from lung damage and abnormal healing caused by a wide variety of factors. My study is aimed to discover the cause of any step change in the incidence of CLD in our unit in 1987/8. The only variable examined that satisfactorily explained such a change was the early use of parenteral lipid, I do not believe at this time because of concern about poor postnatal weight gain in patients with CLD. It would of course be possible to explore this variable further on a multicentre basis that only some infants, probably the sickest, are adversely affected by very early lipid infusion.
Factors associated with chronic lung disease in preterm infants.

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