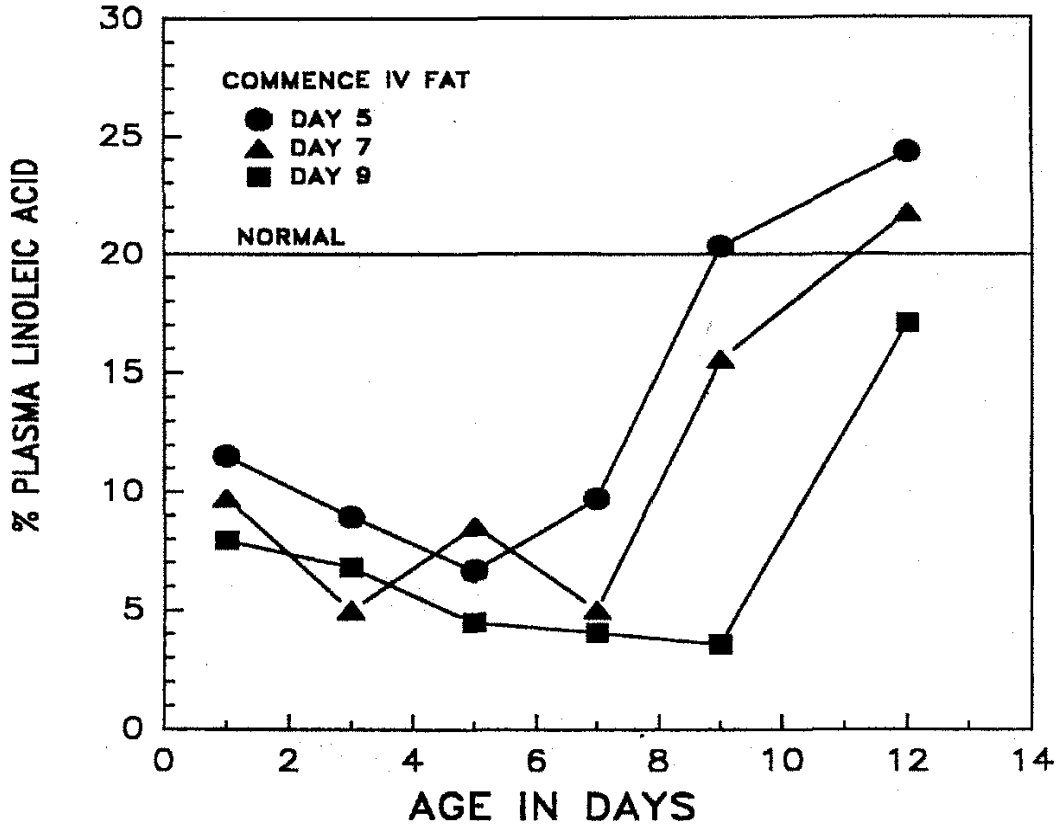
ESSENTIAL FATTY ACID DEFICIENCY IN PARENTERALLY FED PRETERM INFANTS.

E.J.LEE, K.SIMMER and R.A.GIBSON

Low birth weight infants receiving fat-free parenteral nutrition are at risk of developing essential fatty acid deficiency (EFAD) (Friedman et al, 1976). One of the primary biochemical manifestations of EFAD is an abnormally low plasma linoleic acid (LA) status.

The purpose of this study is to seek biochemical evidence of EFAD in parenterally fed preterm infants, in whom early intravenous (IV) administration of fat is contraindicated. Plasma fatty acid determinations were carried out in eight preterm infants receiving fat-free IV alimentation. Three typical plasma LA profiles are shown below (see graph).



The rapid depletion of plasma LA during the first few days of fat-free parenteral nutrition indicates impending EFAD. By Day 12, normal plasma LA levels were exhibited by the infants in whom IV fat administration commenced between Days 5 and 7, but not by the infant whose fat supply was delayed until Day 9. This data suggests that a minimum of 4 days IV fat supplementation is required to normalize LA levels.

The biological and metabolic implications of EFAD during the first days of life is uncertain. Fat supplementation should be considered at an earlier stage of parenteral feeding, to avoid depletion of essential fatty acids.

FRIEDMAN,Z., DANON,A., STAHLMAN,M.T. and OATES,J.A. (1976). Pediatrics. 58:640.

Department of Paediatrics,Flinders Medical Centre, Bedford Park, South Australia 5042