PARENTERAL NUTRITION
Supporting information

This guideline has been prepared with reference to the following:

NICE. Neonatal parenteral nutrition. 2020. London. NICE.

https://www.nice.org.uk/guidance/ng154

British Association of Perinatal Medicine. The Provision of Parenteral Nutrition within Neonatal Services: A Framework for Practice. 2016. BAPM

https://www.bapm.org/resources/42-the-provision-of-parenteral-nutrition-within-neonatal-services-a-framework-for-practice-2016

Ben XM. Nutritional management of newborn infants: practical guidelines. World J Gastroenterol 2008;14:6133-9

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2761573/

Parenteral Nutrition Guidelines Working Group. Guidelines on Paediatric Parenteral Nutrition of the European Society of Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) and the European Society for Clinical Nutrition and Metabolism (ESPEN), Supported by the European Society of Paediatric Research (ESPR). Journal of Pediatric Gastroenterology and Nutrition. 2005:41;S1-87

http://www.rch.org.au/uploadedFiles/Main/Content/rchcpg/hospital_clinical_guideline_index/ESPGHAN%20Guidelines_Paediatric_Parenteral_Nutrition_2005.pdf

What are the risk factors for parenteral nutrition-associated cholestasis (PNAC)?
A retrospective study in 62 premature infants (Hsieh, 2009) identified young gestational age, low birth body weight, more sepsis episodes, extended duration of parenteral nutrition and low energy intake during the 2nd and 3rd weeks of life as significant risk factors for PNAC. Subsequent studies have additionally identified the male gender (Yan, 2017) as well as necrotising enterocolitis and fluconazole prophylaxis as risk factors (Lee, 2016).
A 2019 systematic review of retrospective studies confirmed that sepsis was a risk factor PNAC (Cao, 2019). Sepsis was significantly associated with PNAC (pooled OR 2.04; 95%CI 1.23-2.85), but bronchopulmonary dysplasia was not (pooled OR 1.22; 95%CI 0.65-1.78).

Cao S, Niu S, Wang X et al. Sepsis and bronchopulmonary dysplasia as potential risk factors for parenteral nutrition-associated cholestasis in neonates: a meta-analysis of retrospective studies. Minerva Pediatr. 2019 Jun 28 [Epub ahead of print]

Hsieh MH, Pai W, Tseng HI, et al. Parenteral nutrition-associated cholestasis in premature babies: risk factors and predictors. Pediatr Neonatol 2009;50:202-7

Lee HH, Jung JM, Nam SH et al. Risk factor analysis of parenteral nutrition-associated cholestasis in extremely low birth weight infants. Acta Paediatr. 2016;105:e313-9

Yan W, Hong L, Wang Y et al. Retrospective Dual-Center Study of Parenteral Nutrition-Associated Cholestasis in Premature Neonates: 15 Years' Experience. Nutr Clin Pract. 2017;32:07-413

Evidence Level: IV

Last amended March 2020
Last reviewed December 2021