

MEETING ABSTRACT

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# Parenteral nutrition associated cholestasis

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Parenteral nutrition (PN) is life saving for many preterm infants and other neonates with severe illness, but prolonged use of PN can lead to intrahepatic cholestasis, referred to as parenteral nutrition-associated cholestasis (PNAC). It is defined as direct bilirubin greater than 2.0 mg/dL persistent for at least 2 consecutive tests during the administration of PN, not associated with other known causes of cholestasis [1-3].

With the increasing survival of preterm infants and neonates requiring intensive care, PNAC has become a more common clinical challenge. The incidence of PNAC varies widely depending on the population studied, with high incidence in populations carrying several risk factors for PNAC. It increases with duration of PN and ranges from 10% to 85% in infants [4-8].

A multifactorial aetiology has been proposed for the development of PNAC. Recognized risk factors for PNAC include low birth weight, low gestational age, necrotizing enterocolitis, intestinal malformations, and intestinal surgery. A further risk factor is the occurrence of severe infections, due to the requirement for central line for infusion of PN, and bacterial overgrowth caused by enteral starvation and immature immune function [9-13].

However, exposure to PN is demonstrated as the main factor in the development of PNAC. Intravenous hyperalimentation has been implicated, such as the total caloric overload, the quality of amino acid solutions, the cumulative amount and the quality of lipid infusion, the presence of excessive aluminium in the PN solution, and the high manganese intake with PN [1,14-17].

Ursodeoxycholic acid, cyclic PN, light protection for PN, tapering the soybean-based lipid emulsion, and antibiotics to decontaminate bacterial overgrowth are used to treat PNAC [18-21].

In recent years, increasing attention has been paid to the lipid content in PN. It has been found that fish

oil-containing lipid emulsions could be useful in infants to reverse PNAC for whom enteral feeding is intolerable. However, no evidence supports the use of fish oil-containing lipid emulsions to prevent PNAC in neonates, including preterm infants [22].

Enteral feeding remains the best strategy to reverse and prevent PNAC, with as little as 10% of caloric intake showing beneficial effects [5,22].

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