Neonatal parenteral nutrition may be delivered via peripheral cannulas or central venous catheters (umbilical or percutaneous)" Ainsworth and McGuire (2015).

Abstract:

BACKGROUND: Neonatal parenteral nutrition may be delivered via peripheral cannulas or central venous catheters (umbilical or percutaneous). As the result of complications associated with umbilical catheters, many neonatal units prefer to use percutaneous catheters after initial stabilisation. Although they can be difficult to place, these catheters may be more stable than peripheral cannulae and require less frequent replacement. These delivery methods may be associated with different risks of adverse events, including acquired invasive infection and extravasation injury.

ReTweet if useful... Vascular access choice for neonatal parenteral nutrition http://ctt.ec/0oh3b+ @ivteam #ivteam

Click To Tweet

OBJECTIVES: To determine the effects of infusion of parenteral nutrition via percutaneous central venous catheters versus peripheral cannulae on nutrient input, growth and development and complications among hospitalised neonates receiving parenteral nutrition in terms of adverse consequences such as bacteraemia or invasive fungal infection, cardiac tamponade or other extravasation injuries.

SEARCH METHODS: We searched the Cochrane Central Register of Controlled Trials (CENTRAL; 2015, Issue 5), MEDLINE (1966 to June 2015) and EMBASE (1980 to June 2015), as well as conference proceedings and previous reviews.

SELECTION CRITERIA: Randomised controlled trials that compared delivery of intravenous fluids (primarily parenteral nutrition) via percutaneous central venous catheters versus peripheral cannulae in hospitalised neonates.

DATA COLLECTION AND ANALYSIS: We extracted data using standard methods of the Cochrane Neonatal Group, with separate evaluation of trial quality and data extraction by two review authors.

MAIN RESULTS: We found six trials recruiting a total of 549 infants. One trial showed that use
of a percutaneous central venous catheter was associated with a smaller deficit between prescribed and actual nutrient intake during the trial period (mean difference (MD) -7.1%, 95% confidence interval (CI) -11.02 to -3.2). Infants in the percutaneous central venous catheter group needed significantly fewer catheters/cannulae (MD -4.3, 95% CI -5.24, -3.43). Meta-analysis of data from all trials revealed no evidence of an effect on the incidence of invasive infection (typical risk ratio (RR) 0.95, 95% CI 0.72 to 1.25; typical risk difference (RD) -0.01, 95% CI -0.08 to 0.06).

AUTHORS’ CONCLUSIONS: Data from one small trial suggest that use of percutaneous central venous catheters to deliver parenteral nutrition increases nutrient input. The significance of this in relation to long-term growth and developmental outcomes is unclear. Three trials suggest that use of percutaneous central venous catheters decreases the number of catheters/cannulae needed to deliver nutrition. No evidence suggests that percutaneous central venous catheter use increases risks of adverse events, particularly invasive infection, although none of the included trials was large enough to rule out an effect on uncommon severe adverse events such as pericardial effusion.

Reference:

Thank you to our partners for supporting IVTEAM