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50 Years Ago in THE JOURNAL OF PEDIATRICS

Umbilical Catheters—Then and Now

Krauss AN, Albert RF, Kannan MM. Contamination of umbilical catheters in the newborn infant. J Pediatr 1970;77:965-9.

With the advent of exchange transfusions, Diamond[1] introduced umbilical venous cord cannulation (UVC) in 1948. He applied Ingraham's newly developed polyethylene plastic catheter, which could be left in contact with human tissue without harm. These catheters are used for fluid resuscitation, blood sampling and transfusions, administration of intravenous medication, central venous pressure monitoring, and parenteral nutrition. In the late 1950s, cannulation of an umbilical artery became practice as well; however, it was soon evident that umbilical catheters carry risks, such as infection and embolism.

Fifty years ago, Krauss et al published a careful study examining 33 umbilical catheters (22 venous and 11 arterial) from 24 newborn infants. Positive cultures from the catheters were obtained in 57% of the infants, and there was no difference between arterial or venous catheters. Most often, the cultures showed growth of *Pseudomonas* and *Staphylococcus*. The incidence of positive cultures was not reduced by systemic antibiotics, early insertion (under 6 hours), or early removal (under 24 hours).

In a recent study, Dubbink-Verheij et al[2] detected thrombi in the umbilical venous catheter route in 75% of infants. Malposition of the catheter is quite common, and thus ultrasound confirmation of the position is recommended. In fact, despite improved techniques and catheters, the incidence rate of complications, including infections, has not decreased substantially over the last 50 years.[3]

Fifty years after the report of Krauss et al, whether prophylactic antibiotic therapy prevents catheter-related infections remains an open question.[4]

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