We determined whether in critically ill children with an untunneled central venous catheter, the risk of catheter-associated deep venous thrombosis can be predicted within 24 hours after insertion of the catheter” Marquez metal (2016).

Abstract:

OBJECTIVE: We determined whether in critically ill children with an untunneled central venous catheter, the risk of catheter-associated deep venous thrombosis can be predicted within 24 hours after insertion of the catheter.

Design: Secondary analysis of two multicenter prospective cohort studies.

Setting: PICUs in Northeastern United States.

Patients: A total of 175 children admitted to the PICU within 24 hours after insertion of an untunneled central venous catheter who did not receive anticoagulation were included. Of these, 53 (30.3%) developed catheter-associated thrombosis detected with active surveillance with ultrasonography.

Interventions: None.

Measurements and main results: We used logistic regression (models 1 and 2) and recursive partitioning (models 3 and 4) methods to develop risk prediction models with predictors present at any time while catheterized (models 1 and 3), or within 24 hours after insertion of the catheter (models 2 and 4). Age, recent surgery, catheter in the subclavian vein, and blood product transfusion were included in models 1 and 2. Areas under the receiver operating characteristic curves were similar for these models (model 1: 0.80 vs model 2: 0.80; p = 0.44). Except for recent surgery, predictors in model 1 were identified as partitioning variables for model 3. In addition to the predictors in model 2, severity of illness
was used in partitioning for model 4. The area under the curve of model 3 appeared smaller than that of model 4 (0.75 vs 0.80; \( p = 0.08 \)). Groups of children at low, intermediate, and high risks of catheter-associated thrombosis were identified using model 4.

CONCLUSIONS: Critically ill children at high risk of catheter-associated thrombosis can be identified within 24 hours after insertion of an untunneled central venous catheter. 
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