

**When planning central vascular access for a pediatric spine patient, placing central access the day before surgery can decrease the time from induction to incision, therefore decreasing time under general anesthesia, potentially improving patient safety, and overall value” Stuedemann et al (2017).**

Abstract:

Pediatric patients undergoing surgery for spinal deformity may benefit from central venous access to provide intraoperative monitoring and fluid resuscitation. For pediatric surgical patients requiring central access, we hypothesized that placing a peripherally inserted central catheter (PICC) line preoperatively should decrease time from induction of anesthesia to incision and result in improved patient safety and decreased operating room charges. This was a retrospective, nonrandomized, and case comparison study.

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Clinical records of all children with adolescent idiopathic scoliosis or neuromuscular scoliosis treated surgically by the senior author between December 2007 and April 2012 were reviewed. Control group patients had a central venous catheter (CVC) placed by the anesthesiologist after induction of anesthesia. The trial group had a PICC placed under local anesthesia the day before surgery by an experienced vascular access team. The time from induction of anesthesia to the time for the surgical incision was determined for each study group. The CVC line placement charges were determined by the operating room time charges at \$214/min. Charges saved were the mean time difference multiplied by the operating room time charge, less the charge for PICC line insertion (\$1282). There were 29 neuromuscular patients, the mean age was 13 years (SD: 4 years). The mean time from induction to incision for the PICC group was 91 min [95% confidence interval (CI): 67-115 min] and for the CVC group 113 min (95% CI: 99-127 min, P=0.083). For this mean time difference of 22 min, the estimated cost savings would be \$3426 per patient. There were 59 patients with adolescent idiopathic scoliosis, the mean age was 14 years (SD: 2

years). The mean time from induction to incision for the PICC group was 78 min (95% CI: 74-82 min) and for the CVC group 106 min (95% CI: 96-116 min,  $P \leq 0.001$ ). For this mean time difference of 28 min, the estimated cost savings would be \$4710 per patient. When planning central vascular access for a pediatric spine patient, placing central access the day before surgery can decrease the time from induction to incision, therefore decreasing time under general anesthesia, potentially improving patient safety, and overall value. Prospective research into the use of PICC lines in pediatric spinal fusion surgery is planned.

Reference:

Stuedemann, A.E., Schwend, R.M., Thomas, V.K., Leamon, J.M. and Lightner, T.S. (2017) A peripherally inserted central catheter line, inserted the day before surgery, decreases the time from induction to incision for spinal deformity surgery and safely provides central venous access during surgery: a pilot study. *Journal of Pediatric Orthopedics*. February 24th. .

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