**Abstract:**

Background: Umbilical arterial catheters (UACs) are frequently used in critically ill neonates. UAC are convenient, reliable, and allow for caregiver convenience in performing painless arterial blood sampling. We hypothesized that UAC removal in extremely low birth weight (ELBW) neonates will result in significantly less phlebotomy blood loss (PBL) after correcting for severity of illness.

Study design and methods: PBL was measured at a single center in 99 ELBW infants who survived to day 28. Individual infant’s paired daily PBL for the two 24-h periods before and after UAC removal were compared using the paired t test. Daily PBL up to 7 days before and 7 days after UAC removal were compared using a logistic regression with mixed model analysis for repeated measures. Cumulative 28-day phlebotomy loss was evaluated by multiple linear regression analysis.

Results: PBL 24 h before and after UAC removal were 1.7 mL (95% CI 1.5-1.9) and 0.9 mL (95% CI 0.8-1.0; p < 0.0001), respectively. Cumulative 28-day PBL increased by 2.2 mL (±0.7) per day that a UAC was present with or without correction for severity of illness (p < 0.001).

Conclusion: UAC removal is independently associated with a marked decline in PBL. We speculate the ease and convenience of UAC blood sampling lead to more frequent blood testing and greater PBL.

**Reference:**