



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

KSN SEOUL, KOREA
2026

The 46th Annual Meeting of the Korean Society of Nephrology



Jun 11 (Thu) – 14 (Sun), 2026

COEX, Seoul, Korea

Abstract Type : Poster exhibition

Abstract Submission No.: A-0729

Abstract Topic : Interventional Nephrology

Forearm vs Upper-Arm Arteriovenous Fistula Maturation in Older Adults: Findings From the PRIVA Registry

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Objectives : Evidence is limited on whether forearm or upper-arm arteriovenous fistulas (AVFs) provide superior maturation outcomes in older adults, particularly when focusing on unassisted maturation and identifying patients at risk for maturation failure.

Methods : We performed a prospective multicenter registry-based cohort analysis of AVF creations in patients aged ≥ 65 years using data from the PRIVA registry. Grafts were excluded. AVFs were classified as forearm or upper-arm based on access location. The primary outcome was unassisted maturation success. The secondary outcome was overall maturation success. We compared outcomes between groups and evaluated predictors of maturation failure. Multivariable logistic regression was used for unassisted maturation failure.

Results : Among 724 AVFs (forearm 375; upper-arm 349), unassisted maturation success was similar between groups (forearm 87.2% vs upper-arm 89.7%). Assisted maturation occurred more often in forearm AVFs (10.9% vs 6.9%), while maturation failure was uncommon but numerically higher in upper-arm AVFs (1.9% vs 3.4%). Overall maturation success was high in both groups (forearm 98.1% vs upper-arm 96.6%). In adjusted models, AVF location was not a consistent independent predictor of unassisted success or failure. A history of central venous catheter use was associated with increased odds of maturation failure (approximately 3-fold), while other covariates showed weaker or inconsistent associations.

Conclusions : In patients aged ≥ 65 years, forearm and upper-arm AVFs demonstrated similarly high maturation success. Forearm AVFs more often required augmentation to achieve maturation, whereas outright maturation failure remained uncommon. Prior central venous catheter exposure emerged as a clinically relevant risk marker for maturation failure, supporting targeted preoperative assessment and individualized access planning in older adults.