

## **Handheld ultrasound is a safe and useful aid in cannulation of dialysis access” Kumbar et al (2017).**

### Abstract:

Background: Infiltrations from cannulation result in significant morbidity including loss of hemodialysis (HD) vascular access (VA). Cannulation is dependent on personnel skill and VA characteristics. Surface marking of VA lacks real-time information and traditional ultrasound (US) devices are large, expensive, requiring skilled operators. Sonic Window® (Analogic Ultrasound, Peabody, MA, USA) is a coronal mode ultrasound device (CMUD) approved for VA cannulation.

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Methods: Single center randomized, prospective pilot study comparing handheld US-guided cannulation of new arteriovenous fistula (AVF) to standard cannulation practices. Patients with end stage renal disease (ESRD) on in-center HD who had a new AVF cleared for cannulation and dialysis were enrolled. Patients with new AVF received either standard cannulation (control group) or image guidance using CMUD (study group) for 3 weeks. Ultrasound characteristics of VA, cannulation practices and complications end points were obtained.

Results: An infiltration rate of 9.7% was noted during the study. Slightly lower odds ratio (OR) of infiltration was observed in the study group (OR 0.94, 95% CI: 0.26-3.41, P value = 0.93). Study group yielded longer time for assessment ( $101.8 \pm 80.2$  vs.  $22.3 \pm 22.5$  seconds,  $P < 0.001$ ), increased cannulation time ( $41.1 \pm 70.6$  vs.  $25.0 \pm 27.9$  seconds,  $P = 0.04$ ), and increased patient satisfaction (94.6% vs. 82%,  $P = 0.04$ ) compared to control group. Number of cannulation attempts, needle size, arterial or venous needle insertion, and tourniquet usage between groups were not statistically different.

Conclusion: Handheld ultrasound is a safe and useful aid in cannulation of dialysis access.

### Reference:

Kumbar, L., Soi, V., Adams, E., Brown Deacon, C., Zidan, M. and Yee, J. (2017) Coronal mode ultrasound guided hemodialysis cannulation: A pilot randomized comparison with standard cannulation technique. Hemodialysis International. January 9th. .



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