



Our primary objective was to determine the feasibility of randomizing patients with ESKD training for home hemodialysis to buttonhole versus stepladder cannulation of the AVF. Secondary objectives included training time, pain with needling, complications, and cost by cannulation technique” Huang et al (2019).

Abstract:

BACKGROUND AND OBJECTIVES: Canadian home hemodialysis guidelines highlight the potential differences in complications associated with arteriovenous fistula (AVF) cannulation technique as a research priority. Our primary objective was to determine the feasibility of randomizing patients with ESKD training for home hemodialysis to buttonhole versus stepladder cannulation of the AVF. Secondary objectives included training time, pain with needling, complications, and cost by cannulation technique.

DESIGN, SETTING, PARTICIPANTS, & MEASUREMENTS: All patients training for home hemodialysis at seven Canadian hospitals were assessed for eligibility, and demographic information and access type was collected on everyone. Patients who consented to participate were randomized to buttonhole or stepladder cannulation technique. Time to train for home hemodialysis, pain scores on cannulation, and complications over 12 months was recorded. For eligible but not randomized patients, reasons for not participating in the trial were documented.

RESULTS: Patient recruitment was November 2013 to November 2015. During this time, 158 patients began training for home hemodialysis, and 108 were ineligible for the trial. Diabetes mellitus as a cause of ESKD (31% versus 12%) and central venous catheter use (74% versus 6%) were more common in ineligible patients. Of the 50 eligible patients, 14 patients from four out of seven sites consented to participate in the study (28%). The most common reason for declining to participate was a strong preference for a particular cannulation technique (33%). Patients randomized to buttonhole versus stepladder cannulation required a shorter time to complete home hemodialysis training. We did not observe a reduction in cannulation pain or complications with the buttonhole method. Data linkages for a formal cost analysis were not conducted.

CONCLUSIONS: We were unable to demonstrate the feasibility of conducting a randomized, controlled trial of buttonhole versus stepladder cannulation in Canada with a sufficient number of patients on home hemodialysis to be able to draw meaningful conclusions.

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Reference:

Huang, S.S., MacRae, J., Ross, D., Imtiaz, R., Hollingsworth, B., Nesrallah, G.E., Copland, M.A., McFarlane, P.A., Chan, C.T. and Zimmerman, D. (2019) Buttonhole versus Stepladder Cannulation for Home Hemodialysis: A Multicenter, Randomized, Pilot Trial. *Clinical Journal of the American Society of Nephrology*. January 18th. .

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