

## **We describe the frequency and type of bacterial colonization of the buttonhole tract over time and associated clinical infections” Christensen et al (2018).**

### Abstract:

**BACKGROUND:** The buttonhole cannulation technique for arteriovenous fistulas is widely used, but has been associated with an increased rate of vascular access-related infections. We describe the frequency and type of bacterial colonization of the buttonhole tract over time and associated clinical infections.

**STUDY DESIGN:** A prospective observational cohort study with 9 months of follow-up.

**SETTING & PARTICIPANTS:** 84 in-center hemodialysis patients using the buttonhole cannulation technique at 2 Danish dialysis centers.

**OUTCOMES:** Bacterial growth from the buttonhole tract and dialysis cannula tip and clinically important infections during follow-up.

**MEASUREMENTS:** On 3 occasions 1 month apart, cultures before dialysis (from the skin surrounding the buttonhole before disinfection and from the cannulation tract after disinfection and scab removal) and the cannula tip after dialysis. Patients with positive cultures from the buttonhole tract or cannula tip had repeat cultures within 1 week, along with blood cultures.

**RESULTS:** Growth from the cannulation tract and/or cannula tip at each of the 3 monthly sets of cultures was found in 18%, 20%, and 17% of patients, respectively. 38% of patients had at least 1 positive culture from the buttonhole tract. Sustained growth was detected in 11% of patients, whereas asymptomatic bacteremia was seen in 30% of those with positive buttonhole cultures. Staphylococci species were the most common pathogens (*Staphylococcus aureus*, 25%; and *Staphylococcus epidermidis*, 41%). Colonization-positive buttonholes had more localized redness and slightly more tenderness. During follow-up, significantly more access-related infections were diagnosed among those with positive buttonhole cultures ( $P < 0.001$ ).

**LIMITATIONS:** No comparison to area puncture cannulation technique. Blood cultures were obtained only from patients with positive buttonhole bacteriology.

CONCLUSIONS: Transient or sustained colonization of the buttonhole tract by staphylococci and asymptomatic bacteremia is common in hemodialysis patients, implying a substantial risk for access-related infections among patients using a buttonhole cannulation technique. These findings suggest the possible value of surveillance of buttonhole colonisation.

Reference:

Christensen, L.D., Skadborg, M.B., Mortensen, A.H., Mortensen, C., Møller, J.K., Lemming, L., Høgsberg, I., Petersen, S.E. and Buus, N.H. (2017) Bacteriology of the Buttonhole Cannulation Tract in Hemodialysis Patients: A Prospective Cohort Study. *American Journal of Kidney Diseases*. March 29th. .

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