

## Abstract

# A Comparison of Buttonhole Cannulation versus Conventional Cannulation on Frequency of Infection and Thrombosis

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### Introduction:

Buttonhole cannulation of arteriovenous fistula was first described in the late 1970's. It is proven to provide better quality outcomes like easier cannulation, less pain, faster homeostasis, fewer hematomas and aneurysms. However, few studies have reported higher infection rate. This study was conducted to find out if there were significant differences of the frequency of infection and thrombosis between buttonhole and conventional cannulation method.

### Method:

Buttonhole cannulation had been initiated in Pusat Hemodialisis Mawar since August 2010 and the selection of patients was based on patient's preference. A 1- year retrospective study was carried out in Pusat Hemodialisis Mawar from 1st July 2011 to 30th June 2012. Two groups were defined: a buttonhole cannulation group and a matched control cohort with conventional rope ladder cannulation. The cases of infection and thrombosis in each group were recorded and statistically analyzed.

### Results:

Eighty patients who had been on buttonhole cannulation were matched with 80 patients with conventional cannulation and compared. The demographic data were similar in these 2 groups: Female-63.8% (51), Diabetes-67.5% (54), mean age- 60 years. Mean duration of hemodialysis: 843 days (28.1 months) vs 761days (25.4 months). Mean primary patency of arteriovenous fistula: 722 days (24.1 months) vs 782 days (26.1 months). Among the buttonhole patients, 27.5% (22) did not complete the study, 11.3% (9) due to factors not related to fistula (death, transferred to other centers, transplant or CAPD), 7.5% (6) stopped when complications like thrombosis and infection set in and 8.7% (7) due to cost factors. Frequency of infection: 6 cases in buttonhole group, 3 cases in control group. Frequency of thrombosis: 3 cases in buttonhole group and 4 cases in control group. There were no significant differences in the frequency of infection ( $p=0.164$ ) and thrombosis ( $p=0.279$ ) when comparing the 2 cannulation methods.

### Discussion & Conclusion:

In this study, the frequency of infection and thrombosis were not significantly increased in the buttonhole group but it might be due to small sample size, high dropout rate and short duration of the study. The practice of buttonhole cannulation should be encouraged provided cost is not a factor.