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Dialysis

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Time between Arteriovenous Fistula (AVF) or Arteriovenous Graft (AVG) Creation and Cannulation

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Background: Time between AVF or AVG creation and cannulation varied in clinical practice. Current guidelines on cannulation are under debate, since there is no evidence to suggest that a delay in cannulation will improve AVF or AVG survival. In addition, a delay in cannulation may prolong the use of central vein catheters that are associated with higher morbidity and mortality.

Methods: Seven hundred eighty six creations of AVF and AVG between 2011 and 2015 in Seoul St. Mary's Hospital were reviewed. Out of 786 patients, the date of first successful cannulation was confirmed in 472 patients. Current state and factors relating to time between AVF or AVG creation and cannulation were analyzed.

Results: Out of 786 patients, the proportion of AVF has increased during 5 years from 71.8% to 86.3%. At initiation of hemodialysis, 64.7% of patients were using central vein catheters. With the analysis of 472 patients whose first successful cannulation date was confirmed, first cannulation was done over 8 weeks of creation in 67% of fistulae and over 4 weeks of creation in 80% of grafts. Moreover, a delay in cannulation was not so different even in the 272 patients who were maintaining on hemodialysis using central vein catheters (Table 1). When we evaluated the factors related to the time between AVF or AVG creation and cannulation, fistula cannulation was delayed in females, diabetics, and patients received endovascular intervention to salvage immature fistula. On the other hand, cannulation time was shorter in secondary upper arm fistulae having previous forearm fistulae in the same arm. However, age, vessel mapping before fistula creation, combined cardiovascular complications, and left arm vs. right arm were not related to the cannulation time.

Conclusion: In our clinical practice, time between AVF or AVG creation and cannulation was too delayed based on the international guidelines and reports from other countries. It must be improved to enhance adequate dialysis and decrease the stay of central vein catheters.

Table: Table 1. Time between AVF or AVG creation and cannulation in 272 patients maintaining on hemodialysis using central vein catheter.

Week	<4 (%)	4-8 (%)	8-12 (%)	12< (%)
Total fistula (n=215)	1.4	35.8	31.1	31.6
Radiocephalic (n=85)	1.2	40.0	29.4	29.4
Upper arm (n=130)	1.5	33.1	32.3	33.1

Total graft (n=57)	21.1	57.9	15.8	5.3
Forearm (n=21)	9.5	57.1	23.8	9.5
Upper arm (n=36)	27.8	58.3	11.1	2.8

Keywords: arteriovenous fistula, arteriovenous graft, cannulation, central vein catheter